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VOLUME III

TRANSCRIPT OF RECORD

Supreme Court of the United States

OCTOBER TERM, 1960

No. 501

BINKS MANUFACTURING CO.,
PETITIONER,

vs.

RANSBURG ELECTRO-COATING CORPORATION.

ON WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS
FOR THE SEVENTH CIRCUIT

PETITION FOR CERTIORARI FILED OCTOBER 24, 1960

CERTIORARI GRANTED DECEMBER 19, 1960

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2218445 Oct. 15, 1940 Production of Pile Surface Materials	711	708
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2376343 May 22, 1945 Manufacture of Abrasives	815	812
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APPENDIX.

EXHIBITS TO DEFENDANT'S ANSWER TO PLAINTIFF'S INTERROGATORY NO. 8.

Exhibit D-11.

Adopted May, 1953.

Serial No. .....

Ransburg Electrostatic Spray Process Agreement.

This agreement, entered into by and between Ransburg Electro-Coating Corp., an Indiana corporation, having its principal place of business at Indianapolis, Indiana, hereinafter called "Ransburg", and .....

.....

.....

hereinafter called "User," Witnesseth:

Whereas, Ransburg is the owner of, or otherwise has the right to grant licenses under, certain United States letters patent and inventions all pertaining to and covering methods and apparatus used in the electrostatic coating of articles, the process so used being referred to as "said Process," has acquired much engineering data and experience pertaining to said Process, is conducting research in that field, has performed a substantial amount of engineering in adapting said Process to commercial use, and has supplied User with the results of said engineering pertinent to User's production; and

Whereas, User desires to use said Process and benefit from Ransburg's engineering;

Now, therefore, it is mutually agreed as follows:

1. License: In consideration of the payment by User

of the fees herein provided, Ransburg hereby grants to User, subject to and in accordance with all of the terms and conditions of this agreement and while the same is in effect, a nonexclusive, nonassignable license to use said Process at User's plant in ....., with one unit as shown in Ransburg's Drawing No. ....., subject to such changes therein and such further specifications as Ransburg may prescribe, for electrostatically spraying .....,
but said license shall not include the use of said Process in the manufacture of abrasive articles, flock-coated articles, or articles coated with fiber-shaped particles.

2. Supervision: Ransburg or any of its agents or duly authorized representatives shall, without notice and at any time during User's regular business hours, have access to User's premises where said unit is installed for the purpose of determining the manner in and extent to which User is using said Process so that, to the extent Ransburg deems it desirable, Ransburg may make engineering and/or operating recommendations.

3. Conversion: Upon written request of User and upon terms to be agreeable to both parties, Ransburg will license the use of said Process otherwise than as described in Paragraph 1 unless, in Ransburg's opinion, the requested use involves unsafe practices or impractical conditions or is in conflict with the policies or commitments of Ransburg. Such conversion shall be made only after Ransburg has agreed thereto in writing.

4. Liability: User agrees that Ransburg shall not be liable to User for any loss, cost, expense, or damage arising from any failure of said Process to function in any particular manner or to electrostatically coat any particular article or assembly, or for any claim resulting from the use, operation, or condition of the electrostatic unit with which said Process is used. User further agrees to reim-

burse Ransburg for any loss, cost, expense or damage which may be sustained as a result of any liability to third parties for any claim resulting from the use, operation, or condition of the electrostatic unit with which said Process is used.

5. Performance: The performance of the obligations of both parties hereunder is subject to strikes and lockouts, whether in the organization of either party or elsewhere, and to accidents, fires, delays in manufacture or transportation, acts of God, embargoes, or any governmental action, as well as any causes for postponement or non performance over which the parties have no control; and any failure, due to any of such causes, of either party to perform any of its obligations herein set forth shall not be considered a violation of this agreement.

6. Termination: User shall have the right to terminate this agreement at any time upon thirty days' written notice to Ransburg, provided User has fulfilled its obligations hereunder. Ransburg shall have the right to terminate this agreement at any time after three years from the date of Ransburg's acceptance hereof upon six months' written notice to User.

In the event User shall fail to perform any of the conditions or obligations of this agreement, and such failure shall continue or recur after written notice thereof from Ransburg, Ransburg may (without prejudice to its right to recover any amounts owing by User as herein provided or any damages for breach of this agreement) terminate this agreement forthwith. Any delay, concession, or indulgence on the part of Ransburg in enforcing any of its rights on any default shall not be deemed a waiver of such rights.

7. Fees: User agrees to pay to Ransburg an initial fee of .....
within thirty days after the date of acceptance of this agreement by Ransburg. User further agrees to pay Rans-

burg, on or before the tenth day of each calendar month during the life of this agreement.

Monthly fees under this agreement shall start on the date User begins to use said Process under this agreement or thirty days after the date of acceptance of this agreement by Ransburg, whichever occurs earlier, and the first payment shall be made on or before the tenth day of the calendar month following. For the first and last payments of monthly fees under this agreement, the basic minimum monthly fees shall be prorated according to the portion of the month for which it is payable.

In addition to the above fees, User agrees to pay or to reimburse Ransburg if it should be obliged to pay, directly or indirectly, any taxes, licenses, or fees imposed by the laws of any State, of any political subdivision, of any municipality, or of any other governmental authority by reason of the use or operation of said Process or the license granted under this agreement. Such sums as may be due under this provision shall be paid separately or added to the invoice for other payments as the law may require or as Ransburg may determine.

During the term of this agreement, the basic minimum monthly fee specified above shall from time to time be adjusted commensurately with changes, from the value for May 15, 1950, in the Revised Consumer Price Index, Large Cities Combined, as determined by the Bureau of Labor Statistics of the U. S. Department of Labor on the 1947-49 base; provided, however, that only a change of at least ten percentage points in the value of said Index shall require any such adjustment.

User agrees to keep permanent books of account from which the correctness of the monthly payments made under this agreement can be verified and agrees that such books of account shall be open to inspection by Ransburg or its duly authorized representatives at any time during User's regular business hours.

8. Execution of Agreement: This agreement sets forth the entire agreement and understanding between the parties as to the subject matter of this agreement, and no statements, conditions, or representations, either oral or written, made by the parties, their employees, or agents, including conditions or provisions appearing in any purchase order or other instrument issued by User, shall be valid or binding unless contained in a written instrument signed by both parties. Ransburg makes no warranties of any kind, express or implied, except as set forth in this agreement.

All the rights and privileges of Ransburg hereunder shall be extended to and inure to the benefit of the successors in business or assigns of Ransburg upon User being given written notice of the assignment of this agreement to such successors in business or assigns and upon the written acceptance by such successors in business or assign of all Ranburg's obligations hereunder.

This agreement is submitted in quadruplicate for execution by User. It shall be become a contract only upon its execution and acceptance by Ransburg at Ransburg's home office, in Indianapolis, Indiana, and shall be effective under the laws of the State of Indiana.

In Witness Whereof, the parties have caused this agreement to be executed by an authorized officer or person effective as of the date of acceptance by Ransburg set forth below.

.....(User) Executed and accepted this..... day of

By ....., 195.....

(Title)

Ransburg Electro-Coating Corp. (Ransburg)

By .....

(Title)

Form No. 137.

Exhibit D-12.

Adopted May, 1953.

Serial No. .....

Ransburg Electrostatic Spray Process Agreement.

This agreement, entered into by and between Ransburg Electro-Coating Corp., an Indiana corporation, having its principal place of business at Indianapolis, Indiana, hereinafter called "Ransburg," and .....

.....

.....,

hereinafter called "User," Witnesseth:

Whereas, Ransburg is the owner of, or otherwise has the right to grant licenses under, certain United States letters patent and inventions all pertaining to and covering methods and apparatus used in the electrostatic coating of articles, the process so used being referred to as "said Process," has acquired much engineering data and experience pertaining to said Process, is conducting research in that field, has performed a substantial amount of engineering in adapting said Process to commercial use, has supplied User with the results of said engineering pertinent to User's production, and has designed special equipment therefor; and

Whereas, User desires to use said Process and benefit from Ransburg's engineering and requests that Ransburg furnish certain special equipment hereinbelow described;

Now, therefore, it is mutually agreed as follows:

1. License: In consideration of the payment by User of the fees herein provided, Ransburg hereby grants to User, subject to and in accordance with all of the terms and conditions of this agreement and while the same is in

effect, a nonexclusive, nonassignable license to use said Process at User's plant in _____, with one unit as shown in Ransburg's drawing No. _____, subject to such changes therein and such further specifications as Ransburg may prescribe, for electrostatically spraying _____, but said license shall not include the right to use said Process in the manufacture of abrasive articles, flock-coated articles, or articles coated with fiber-shaped particles.

2. Equipment: Ransburg will furnish User, for its use of said Process, one voltage pack and electrical controls, electrodes and insulating supports therefor, and high voltage lead-in means, which will be shipped prepaid to User's aforesaid plant upon request of User. As parts of Ransburg's equipment become defective, User agrees to return prepaid all such defective parts to Ransburg promptly. Ransburg will furnish replacements, without charge, of any such defective parts which become defective as a result of ordinary wear and tear from proper use and operation, provided such parts are returned to Ransburg within thirty days after they become defective. If said defective parts become defective from improper use, operation, or negligence of User or if said defective parts are not returned to Ransburg within said thirty-day period, User agrees to pay Ransburg, Ransburg's standard charges for furnishing replacements for said defective parts. The furnishing of equipment and replacements by Ransburg is subject to the availability to Ransburg of the necessary component parts of the equipment and replacements and to prior shipment commitments of Ransburg. User shall furnish all labor, materials, and equipment necessary for the use of said Process except the equipment to be furnished by Ransburg in accordance with this paragraph.

3. Supervision: Ransburg will furnish supervision nec-

essary for placing its equipment in readiness for operation. Should Ransburg's supervisor make more than one trip to the plant of User or be delayed there for any cause not chargeable to Ransburg, then for each day of such trip or trips or of such delay, User shall pay Ransburg the sum of Seventy-five Dollars and any necessary transportation expenses incurred thereby.

4. Conversion: Ransburg will grant, upon written request by User, a license to use said Process otherwise than as described in Paragraph 1 unless, in Ransburg's opinion, the requested use involves unsafe practices or impractical conditions or is in conflict with the policies or commitments of Ransburg. Such conversion shall be made only after Ransburg has agreed thereto in writing.

5. Patent Infringement Indemnification: Ransburg agrees to indemnify User (but not in an amount in excess of the total fees paid pursuant to Paragraph 11 hereof) against any liability for infringement of letters patent by said Process if used in accordance with the terms and provisions hereof and to undertake at its expense the defense of any suit brought against User for such infringement, provided User shall promptly notify Ransburg of any such claim of infringement, permit Ransburg to assume the defense thereof, and cooperate with Ransburg in respect thereto and in respect to any necessary changes of equipment or use thereof.

6. Liability: User agrees that Ransburg shall not be liable to User for any loss, cost, expense, or damage arising from any failure of said Process or equipment to function in any particular manner or to electrostatically spray any particular article or assembly, or for any claim (other than as provided in Paragraph 5) resulting from the use, operation, or condition of the equipment furnished by Ransburg while said equipment is in the possession or custody of User. User further agrees to reimburse Ransburg for

any loss, cost, expense, or damage which may be sustained as a result of any liability to third parties for any claim (other than as provided in Paragraph 5) resulting from the use, operation, or condition of the equipment furnished by Ransburg while said equipment is in the possession or custody of User.

Exhibit D-12, Page 2.

Adopted May, 1953.

7. Use of Equipment: User agrees to follow Ransburg's safety and operating recommendations and to maintain Ransburg's equipment in as good condition as when installed, ordinary wear and tear from proper use and operation alone excepted. User agrees that it shall not use or operate Ransburg's equipment with any of the parts or safety devices removed and to reimburse Ransburg for loss of or damage to Ransburg's equipment while in User's possession or custody, ordinary wear and tear from proper use and operation alone excepted.

8. Performance: The performance of the obligations of both parties hereunder is subject to strikes and lockouts, whether in the organization of either party or elsewhere, and to accidents, fires, delays in manufacture or transportation, acts of God, embargoes or any governmental action, as well as any causes for postponement or non-performance over which the parties have no control; and any failure, due to any of such causes, of either party to perform any of its obligations herein set forth shall not be considered a violation of this agreement.

9. Title: Title to all equipment furnished by Ransburg shall at all times remain in Ransburg and said equipment shall remain personal property regardless of how it is affixed to the realty. Ransburg shall have at all times,

during business hours, the right to enter User's premises for the purpose of determining whether its equipment and said Process are being used as herein provided. User shall not have the right, without the written consent of Ransburg, to (1) lease or grant the right to use the equipment furnished by Ransburg to any person, firm, or corporation, (2) remove it from the plant to which it is delivered for installation, or (3) use it for any purpose or in any manner other than as herein provided. Upon termination of this agreement, User agrees to deliver the equipment furnished by Ransburg, freight prepaid, to Ransburg at Indianapolis, Indiana, in as good condition as when installed, ordinary wear and tear incident to its proper use and operation alone excepted.

10. Termination: User shall have the right to terminate this agreement at any time upon thirty days' written notice to Ransburg, provided User has fulfilled its obligations hereunder and returns Ransburg's equipment to Ransburg, prepaid within thirty days after such notification in as good condition as when installed, ordinary wear and tear from proper use and operation alone excepted. Ransburg shall have the right to terminate this agreement at any time after three years from the date of Ransburg's acceptance hereof upon six months' written notice to User.

In the event User shall fail to perform any of the conditions or obligations of this agreement, and such failure shall continue or recur after written notice thereof from Ransburg, Ransburg may (without prejudice to its right to recover any amounts owing by User as herein provided or any damages for breach of this agreement) terminate this agreement and take possession of its equipment forthwith, and for that purpose permission is hereby given Ransburg or any of its agents to enter any premises where-

in its equipment is located, to discover and take possession of its equipment without notice and without being liable to any suit, action, indictment, or other proceedings by User or anyone claiming under it. Any delay, concession, or indulgence on the part of Ransburg in enforcing any of its rights on any default shall not be deemed a waiver of such rights.

11. Fees: User agrees to pay to Ransburg an initial fee of .....

.....

within sixty days after date of shipment of Ransburg's equipment or thirty days after date of installation thereof, whichever occurs earlier. User further agrees to pay to Ransburg, on or before the tenth day of each calendar month during the life of this agreement, a basic minimum monthly fee of One Hundred Dollars ($100.00), which fee is due in any event, and in addition thereto a monthly fee based on the cost to User of the coating material (including all its ingredients) used in said unit during the preceding calendar month in accordance with the following schedule:

Monthly Cost of Coating Material	Monthly Fee
Less than $4,000.00	10% of Cost
$4,000.00 to $8,000.00	$400.00 plus 5% of Cost over $4,000.00
In Excess of $8,000.00	600.00

Exhibit D-12, Page 3.

Adopted May, 1953.

Monthly fees under this agreement shall start with the date of installation of Ransburg's equipment or thirty days after the date of shipment thereof from Ransburg's plant, whichever occurs earlier, and the first payment shall be

made on or before the tenth day of the calendar month following. For the first and last payments of monthly fees under this agreement, the basic minimum monthly fee specified above shall be prorated according to the portion of the month for which it is payable.

In addition to the above fees, User agrees to pay, or to reimburse Ransburg if it should be obliged to pay, directly or indirectly, any taxes, licenses, or fees imposed by the laws of any State, of any political subdivision, of any municipality, or of any other governmental authority by reason of the installation, possession, use, or location of any equipment furnished by Ransburg pursuant to this agreement. Such sums as may be due under this provision shall be paid separately or added to the invoice for other payments as the law may require or as Ransburg may determine.

If User does not request shipment of Ransburg's equipment prior to the expiration of six months after the date of Ransburg's acceptance of this agreement, Ransburg shall have the right, prior to shipment of its equipment, to change the fees and conditions of this agreement to conform to its policy as of the date of such shipment.

During the term of this agreement, the basic minimum monthly fee specified above, the sums set forth in the above columns entitled "Monthly Cost of Coating Material" and "Monthly Fee," and the sum set forth in Paragraph 3 shall from time to time be adjusted commensurately with changes, from the value for May 15, 1950, in the Consumer Price Index, Large Cities Combined, as determined by the Bureau of Labor Statistics of the U. S. Department of Labor, on the 1947-49 base; provided, however, that only a change of at least ten percentage points in the value of said Index shall require any such adjustment.

Upon request of Ransburg, User shall supply Ransburg with a written report showing the monthly quantity of coating material used in said unit and the cost to User of said coating material. User agrees to keep permanent books of account from which the correctness of said written reports can be verified and agrees that such books of account from which the correctness of said written reports can be verified and agrees that such books of account shall be open to inspection by Ransburg or its duly authorized representatives at any time during User's regular business hours.

12. Execution of Agreement: This agreement sets forth the entire agreement and understanding between the parties as to the subject matter of this agreement, and no statements, conditions, or representations, either oral or written, made by the parties, their employees, or agents, including conditions or provisions appearing in any purchase order or other instrument issued by User, shall be valid or binding unless contained in a written instrument signed by both parties. Ransburg makes no warranties of any kind, express or implied, except as set forth in this agreement.

All the rights and privileges of Ransbury hereunder shall be extended to and inure to the benefit of the successors in business or assigns of Ransburg upon User being given written notice of the assignment of this agreement to such successors in business or assigns and upon the written acceptance by such successors in business or assigns of all Ransburg's obligation hereunder.

This agreement is submitted in quadruplicate for execution by User. It shall become a contract only upon its execution and acceptance by Ransburg at Ransburg's home office in Indianapolis, Indiana, and shall be effective under the laws of the State of Indiana.

In Witness Whereof, the parties ~~have~~ caused this agreement to be executed by an authorized officer or person effective as of the date of acceptance by Ransburg set forth below.

.....(User)

By.....

(Title)

Executed and accepted this.....day of

....., 195....

Ransburg Electro-Coating Corp. (Ransburg)

By.....

(Title)

Form No. 138.

Exhibit D-22.

Adopted July 1956.

Ransburg.

No. .....

Electrostatic Spray Process Agreement.

User: .....

Plant: ..... Units: ..... Drawing No. .....

Items: .....

Ransburg Electro-Coating Corp., of Indianapolis, Indiana (herein called Ransburg), which owns patents and inventions for electrostatically depositing liquid particles with the use of compressed air, herein called "the Process," and has done and is doing extensive engineering and research on the Process; and the above User, which desires to use the Process and engineering, agree that:

1. License. During the term and subject to the provisions hereof, Ransburg grants User a non-exclusive license to use the Process at User's plant, with the number of units, in accordance with the drawing made a part hereof (subject to such changes in procedure and specifications as Ransburg may from time to time designate) for coating the items, all as set forth above.

2. Use and Supervision. User will use the Process in accordance with Ransburg's safety and operating recommendations, and will not make any use thereof except as herein provided. Ransburg's duly authorized representatives shall have the right to enter User's premises during business hours to determine the manner in and extent to

which User is using the Process and, to the extent Ransburg deems it desirable, Ransburg may make engineering and or operating recommendations.

3. Fees. User will pay Ransburg at Indianapolis, Indiana: (1) An initial fee of $ ..... within 30 days after the acceptance of this agreement by Ransburg; and (2) For each calendar month during the term hereof, commencing the day User begins to use the Process or 30 days after acceptance of this agreement by Ransburg, whichever occurs earlier, a monthly fee comprising: a basic monthly fee of $80.00 payable in any event, but pro-rated for any partial initial calendar month; and an additional monthly fee based on the cost to User of the coating material (including all its ingredients) used in said unit(s) during said month according to the following schedule:

Monthly Cost of Coating Material	Monthly Fee
Less than $4,000.00	10% of Cost
$4,000 to $8,000	$400.00 plus 5% of Cost over $4,000.00
In Excess of $8,000.00	$600.00

At the request of either party the basic monthly fee from time to time shall be adjusted commensurate with changes of not less than ten points from the value for January, 1956 of the Consumer Price Index, Large Cities Combined, All Items, of the Bureau of Labor Statistics of the U. S. Department of Labor, on the 1947-1949 base, or any successor thereto.

User will keep and make available for Ransburg's inspection during business hours permanent records of all information required for computing monthly fees. Within 10 days following each calendar month User will furnish to Ransburg a written report containing all information for computing the fee for that month, with User's computation and payment of the fee.

4. Liability. Ransburg shall not be liable to User for damages resulting from the installation, servicing, or use of the Process. User indemnifies Ransburg against all claims of others for any damages resulting from the installation, servicing or use of the Process. Ransburg makes no warranty, express or implied, relative to the Process.

5. Term. This agreement shall be in effect from the date of acceptance by Ransburg until terminated as follows: (1) User may terminate as of the end of any calendar month, upon 30 days' written notice to Ransburg; (2) Ransburg may terminate as of any date after three years from the acceptance date hereof, upon six months' written notice to User; or (3) Ransburg may terminate forthwith should User become insolvent or bankrupt or should any breach or default by User remain uncured for 20 days after written notice thereof from Ransburg.

This written agreement constitutes the entire agreement between the parties, and no terms or understandings not herein contained (whether included in any purchase order or otherwise) shall be valid or binding unless contained in a writing signed by both parties. This agreement shall be governed by the law of Indiana.

Signed by User on....., 195....

Accepted by Ransburg on....., 195....

.....(User)

Ransburg Electro-Coating Corp.

By.....

(Title)

By.....

(Title)

Exhibit D-30.

Adopted April, 1954.

Serial No. .....

Ransburg Electro-Spray Agreement.

This agreement, entered into by and between Ransburg Electro-Coating Corp., an Indiana corporation, having its principal place of business at Indianapolis, Indiana, hereinafter called "Ransburg," and .....

.....

.....,

hereinafter called "User," Witnesseth:

Whereas, Ransburg is the owner of, or otherwise has the right to grant licenses under, certain inventions, United States letters patent, or patent applications pertaining to and covering methods and apparatus used in electrostatically depositing liquid spray particles formed by airless atomization (without the use of compressed air), the process so used being hereinafter referred to as "said Process," has acquired much engineering data and experience pertaining to said Process, is conducting research in that field, has performed a substantial amount of engineering in adapting said Process to commercial use, and has supplied User with the results of said engineering pertinent to User's production; and

Whereas, User desires to use said Process and benefit from Ransburg's engineering:

Now, therefore, it is mutually agreed as follows:

1. License: In consideration of the payment by User of the fees herein provided, Ransburg hereby grants to User, subject to and in accordance with all of the terms and conditions of this agreement and while the same is in effect,

a nonexclusive, nonassignable license to use said Process at User's plant in ....., with one unit as shown in Ransburg's Drawing No. ....., subject to such changes therein and such further specifications as Ransburg may prescribe, for electrostatically coating .....

2. Supervision: Ransburg or any of its agents or duly authorized representatives shall, without notice and at any time during User's regular business hours, have access to User's premises where said unit is installed for the purpose of determining the manner in and extent to which User is using said Process so that, to the extent Ransburg deems it desirable, Ransburg may make engineering and/or operating recommendations.

3. Conversion: Upon written request of User and upon terms to be agreeable to both parties, Ransburg will license the use of said Process otherwise than as described in Paragraph 1 unless, in Ransburg's opinion, the requested use involves unsafe practices or impractical conditions or is in conflict with the policies or commitments of Ransburg. Such conversions shall be made only after Ransburg has agreed thereto in writing.

4. Liability: User agrees that Ransburg shall not be liable to User for any loss, cost, expense, or damage arising from any failure of said Process to function in any particular manner, or to electrostatically coat any particular article or assembly, or for any claim resulting from the use, operation, or condition of the electrostatic unit with which said Process is used. User further agrees to reimburse Ransburg for any loss, cost, expense, or damage which may be sustained as a result of any liability to third parties for any claim resulting from the use, operation, or condition of the electrostatic unit with which said Process is used.

5. Performance: The performance of the obligations of both parties hereunder is subject to strikes and lockouts, whether in the organization of either party or elsewhere, and to accidents, fires, delays in manufacture or transportation, acts of God, embargoes, or any governmental action, as well as any causes for postponement or non-performance over which the parties have no control; and any failure due to any of such causes, of either party to perform any of its obligations herein set forth shall not be considered a violation of this agreement.

6. Termination: User shall have the right to terminate this agreement at any time upon thirty days' written notice to Ransburg, provided User has fulfilled its obligations hereunder. Ransburg shall have the right to terminate this agreement at any time after three years from the date of Ransburg's acceptance hereof upon six months' written notice to User.

In the event User shall fail to perform any of the conditions or obligations of this agreement, and such failure shall continue or recur after written notice thereof from Ransburg, Ransburg may (without prejudice to its rights to recover any amounts owing by User as herein provided or any damages for breach of this agreement) terminate this agreement forthwith. Any delay, concession, or indulgence on the part of Ransburg in enforcing any of its rights on any default shall not be deemed a waiver of such rights.

7. Fees: User agrees to pay to Ransburg an initial fee of .....

.....

within thirty days after the date of acceptance of this agreement by Ransburg. User further agrees to pay Ransburg, on or before the tenth day of each calendar month during the life of this agreement,

Monthly fees under this agreement shall start on the

date User begins to use said Process under this agreement or thirty days after the date of acceptance of this agreement by Ransburg whichever occurs earlier, and the first payment shall be made on or before the tenth day of the calendar month following. For the first and last payments of monthly fees under this agreement, the basic minimum monthly fee shall be prorated according to the portion of the month for which it is payable.

In addition to the above fees, User agrees to pay or to reimburse Ransburg if it should be obliged to pay, directly or indirectly, any taxes, licenses, or fees imposed by the laws of any State, of any political subdivision, of any municipality, or of any other governmental authority by reason of the use or operation of said Process or the license granted under this agreement. Such sums as may be due under this provision shall be paid separately or added to the invoice for other payments as the law may require or as Ransburg may determine.

During the term of this agreement, the basic minimum monthly fee specified above shall from time to time be adjusted commensurately with changes, from the value for May 15, 1950, in the Revised Consumer Price Index, Large Cities Combined, as determined by the Bureau of Labor Statistics of the U. S. Department of Labor, on the 1947-49 base; provided, however, that only a change of at least ten percentage points in the value of said Index shall require any such adjustment.

User agrees to keep permanent books of account from which the correctness of the monthly payments made under this agreement can be verified and agrees that such books of account shall be open to inspection by Ransburg or its duly authorized representatives at any time during User's regular business hours.

8. Future Inventions: User agrees that in the event User acquires, from any source, any inventions, improve-

ments, or letters patent, domestic or foreign, pertaining to methods and/or apparatus for electrostatically depositing liquid spray particles formed by airless atomization (without the use of compressed air), Ransburg shall have with respect to coating methods and apparatus employing said inventions, improvements, and the subject matter of said letters patent, a royalty-free, nonexclusive, assignable license, with right to sublicense, such license to be irrevocable except upon voluntary surrender by Ransburg. Patents subject to Ransburg's rights under this paragraph shall include only patents acquired by User during the term of this agreement, patents acquired by User within two years following termination of this agreement, and patents whenever acquired by User which cover inventions and improvements made within the term of this agreement or within two years following its termination.

9. Execution of Agreement: This agreement sets forth the entire agreement and understanding between the parties as to the subject matter of this agreement, and no statements, conditions, or representations, either oral or written, made by the parties, their employees, or agents, including conditions or provisions appearing in any purchase order or other instrument issued by User, shall be valid or binding unless contained in a written instrument signed by both parties. Ransburg makes no warranties of any kind, express or implied, except as set forth in this agreement.

All the rights and privileges of Ransburg hereunder shall be extended to and inure to the benefit of the successors in business or assigns of Ransburg upon User being given written notice of the assignment of this agreement to such successors in business or assigns and upon the written acceptance by such successors in business or asigns of all Ransburg's obligations hereunder.

This agreement is submitted in quadruplicate for execution by User. It shall become a contract only upon its

execution and acceptance by Ransburg at Ransburg's home office in Indianapolis, Indiana, and shall be effective under the laws of the State of Indiana.

In Witness Whereof, the parties have caused this agreement to be executed by an authorized officer or person effective as of the date of acceptance by Ransburg set forth below.

.....(User)

By.....

(Title)

Executed and accepted this.....day of .....,195....

Ransburg Electro-Coating Corp. (Ransburg)

By.....

(Title)

Exhibit D-32.

Adopted Jan. 1955.

Ransburg.

Serial No. .....

Electro-Spray Agreement.

This agreement, entered into by and between Ransburg Electro-Coating Corp., an Indiana corporation, having its principal place of business at Indianapolis, Indiana, hereinafter called "Ransburg," and

.....

.....

hereinafter called "User," Witnesseth:

Whereas, Ransburg is the owner of, or otherwise has the right to grant licenses under, certain United States letters patent and inventions pertaining to and covering methods and apparatus used in electrostatically depositing liquid spray particles formed by airless atomization (without the use of compressed air), the process so used being hereinafter referred to as "said Process," has acquired much engineering data and experience pertaining to said Process, is conducting research in that field, has performed a substantial amount of engineering in adapting said Process to commercial use, has supplied User with results of said engineering pertinent to User's production, and has designed special equipment therefor; and

Whereas, User desires to use said Process and benefit from Ransburg's engineering and requests that Ransburg furnish certain special equipment hereinbelow described;

Now, therefore, it is mutually agreed as follows:

1. License: In consideration of the payment by User

of the fees herein provided, Ransburg hereby grants to User, subject to and in accordance with all of the terms and conditions of this agreement and while the same is in effect, a nonexclusive, nonassignable license to use said Process at User's plant in ....., with ..... as shown in Ransburg's Drawing No. ....., subject to such changes therein and such further specifications as Ransburg may prescribe, for electrostatically coating .....

.....

2. Equipment and Supervision: Ransburg will furnish User, for its use of said Process, high voltage, atomizing, and liquid supply apparatus and electrical controls therefor and such other equipment as Ransburg deems desirable, which will be shipped prepaid to User's aforesaid plant upon request of User. As parts of Ransburg's equipment become defective, User agrees to return prepaid to Ransburg promptly all such defective parts. Ransburg will furnish replacements, without charge, of any such defective parts which become defective as a result of ordinary wear and tear from proper use and operation, provided such parts are returned to Ransburg within thirty days after they become defective. If defective parts become defective from improper use, operation, or negligence of User or if defective parts are not returned to Ransburg within said thirty-day period, User agrees to pay Ransburg Ransburg's standard charges for furnishing replacements for defective parts.

Ransburg will furnish supervision necessary for placing its equipment in readiness for operation. Should Ransburg's supervisor make more than one trip to the plant of User or be delayed there for any cause not chargeable to Ransburg, then for each day of such trip or trips or of such delay, User shall pay Ransburg the sum of Seventy-five

Dollars and any necessary transportation expenses incurred thereby.

User shall furnish all labor, materials, and equipment necessary for the use of said Process except the equipment and supervision to be furnished by Ransburg in accordance with this paragraph.

The furnishing of equipment, replacements, and supervision by Ransburg is subject to the availability to Ransburg of the necessary component parts of the equipment and replacements, to prior shipment commitments of Ransburg, to strikes and lockouts, whether in the organization of Ransburg or elsewhere, and to accidents, fires, delays in manufacture or transportation, acts of God, court injunctions, or any governmental action, as well as any causes for postponement or non-performance over which Ransburg has no control; and any failure, due to any of such causes, of Ransburg to perform any of its obligations herein set forth shall not be considered a breach of this agreement.

3. Title and Use of Equipment: Title to all equipment furnished by Ransburg including replacements shall at all times remain in Ransburg, and said equipment shall remain personal property regardless of how it is affixed to the realty. Ransburg shall have at all times, during business hours, the right to enter User's premises for the purpose of determining whether its equipment and said Process are being used as herein provided. User shall not have the right, without the written consent of Ransburg, to (1) lease or grant the right to use the equipment furnished by Ransburg to any person, firm, or corporation, (2) remove it from the plant to which it is delivered for installation, or (3) use it for any purpose or in any manner other than as herein provided.

User agrees that it shall not use or operate Ransburg's equipment with any of the parts or safety devices removed, that it shall follow Ransburg's safety and operating recom-

mendations, and that it shall maintain Ransburg's equipment in as good condition as when installed, ordinary wear and tear from proper use and operation alone excepted.

4. Liability: User agrees that Ransburg shall not be liable to User for any loss, cost, expense, or damage resulting from any failure of said Process or equipment to function in any particular manner or to electrostatically coat any particular article or assembly or resulting from the installing, servicing, adjusting, presence, use, operation or condition of Ransburg's equipment or resulting from any act or omission of Ransburg's employees or agents while on the premises of User. Also, User agrees to indemnify Ransburg for any loss, cost, expense, or damage Ransburg may sustain because of any claims by third parties resulting from the installing, servicing, adjusting, presence, use, operation or condition of Ransburg's equipment or resulting from any act or omission of Ransburg's employees or agents while on the premises of User. User shall be liable to Ransburg for any loss of, or damage to, Ransburg's equipment occurring at any time that such equipment is in the possession of User or any of its agents, ordinary wear and tear from proper use and operation alone excepted.

5. Termination: User shall have the right to terminate this agreement at any time upon thirty days' written notice to Ransburg, provided User has fulfilled its obligations hereunder including the return of Ransburg's equipment. Ransburg shall have the right to terminate this agreement at any time after three years from the date of Ransburg's acceptance hereof upon six months' written notice to User.

In the event User shall fail to perform any of the conditions or obligations of this agreement, and such failure shall continue or recur after written notice thereof from Ransburg, Ransburg may (without prejudice to its rights to recover any amounts owing by User as herein provided

or any damages for breach of this agreement) terminate this agreement and take possession of its equipment forthwith, and for that purpose permission is hereby given Ransburg or any of its agents to enter any premises wherein its equipment is located to discover and take possession of its equipment without notice and without being liable to any suit, action, indictment, or other proceedings by User or anyone claiming under it. Any delay, concession, or indulgence on the part of Ransburg in enforcing any of its rights on any default shall not be deemed a waiver of such rights.

After notice of termination of this agreement, User agrees to deliver the equipment furnished by Ransburg, to Ransburg at Indianapolis, Indiana, freight prepaid, in as good condition as when installed, ordinary wear and tear incident to its proper use and operation alone excepted.

6. Fees: User agrees to pay to Ransburg an initial fee of .....

.....

within sixty days after date of shipment of Ransburg's equipment or thirty days after date of installation thereof, whichever occurs earlier. In the event User has not requested shipment of Ransburg's equipment prior to the termination of this agreement or within six months of the date of Ransburg's acceptance of this agreement, whichever is earlier, one-half of the initial fee shall become due and payable forthwith, and the balance of it shall be due and payable as provided hereinabove. For each calendar month during which this agreement is in effect, User also agrees to pay to Ransburg a monthly fee.

The first period for which a monthly fee is payable shall commence with the date of installation of Ransburg's equipment, or thirty days after the date of shipment thereof by Ransburg whichever occurs earlier. With respect to any

fractional calendar month for which a monthly fee is payable, the basic minimum monthly fee shall be prorated according to the portion of the month for which it is payable. Within ten days after the end of each calendar month for which a monthly fee is payable, User will furnish to Ransburg upon forms furnished by Ransburg, or, in the absence thereof, upon any reasonably adequate form, a written report setting forth in reasonable detail the information upon which the aforesaid monthly fee may be computed and shall pay to Ransburg at its office at Indianapolis, Indiana, the monthly fee payable for said month. User agrees to keep permanent books of account from which the correctness of said written reports can be verified and agrees that such books of account shall be open to inspection by Ransburg or its duly authorized representatives at any time during User's regular business hours.

In addition to the above fees, User agrees to pay, or to reimburse Ransburg if it should be obliged to pay, directly or indirectly, any taxes, licenses, or fees imposed by the laws of any State, of any political subdivision, of any municipality, or of any other governmental authority by reason of the installation, possession, use, or location of any equipment furnished by Ransburg or by reason of the furnishing of any services by Ransburg pursuant to this agreement. Such sums as may be due under this provision shall be paid separately or added to the invoice for other payments as the law may require or as Ransburg may determine.

If User does not request shipment of Ransburg's equipment prior to the expiration of six months after the date of Ransburg's acceptance of this agreement, Ransburg shall have the right, prior to shipment of its equipment, to change the fees and conditions of this agreement to conform to its policy as of the date of such shipment.

During the term of this agreement, the basic minimum monthly fee specified above and the sum set forth in Paragraph 2 may from time to time be adjusted commensurately with changes, from the value for November, 1950, in the Consumer Price Index, Large Cities Combined, All Items, as determined by the Bureau of Labor Statistics of the U. S. Department of Labor, on the 1947-49 base, or any successor thereto; provided, however, no such adjustment shall be made unless a change of at least ten percentage points has occurred in said Index prior to each such adjustment.

7. Execution of Agreement: This agreement sets forth the entire agreement and understanding between the parties as to the subject matter of this agreement, and no statements, conditions, or representations, either oral or written, made by the parties, their employees, or agents, including conditions or provisions appearing in any purchase order or other instrument issued by User, shall be valid or binding unless contained in a written instrument signed by both parties. Ransburg makes no warranties of any kind, express or implied, except as set forth in this agreement.

All the rights and privileges of Ransburg hereunder shall be extended to and inure to the benefit of the successors in business or assigns of Ransburg upon User being given written notice of the assignment of this agreement to such successors in business or assigns and upon the written acceptance by such successors in business or assigns of all Ransburg's obligations hereunder.

This agreement consisting of three pages is submitted in quadruplicate for execution by User. It shall become a contract only upon its execution and acceptance by Ransburg at Ransburg's home office in Indianapolis, Indiana, and shall be effective under the laws of the State of Indiana.

In Witness Whereof, the parties have caused this agreement to be executed by an authorized officer or person effective as of the date of acceptance by Ransburg set forth below.

Executed and accepted by Ransburg this ..... day of ....., 195..

Ransburg Electro-Coating Corp. (Ransburg)

By .....

(Title)

..... (User)

By .....

(Title)

Exhibit D-33.

Adopted March 1955.

Ransburg

Serial No. .....

Electro-Spray Agreement

This agreement, entered into by and between Ransburg Electro-Coating Corp., an Indiana corporation, having its principal place of business at Indianapolis, Indiana, hereinafter called "Ransburg," and .....

.....

.....

hereinafter called "User," Witnesseth:

Whereas, Ransburg is the owner of, or otherwise has the right to grant licenses under, certain United States letters patent and inventions pertaining to and covering methods and apparatus used in electrostatically deposit-

ing liquid spray particles formed by airless atomization (without the use of compressed air), the process so used being hereinafter referred to as "said Process," has acquired much engineering data and experience pertaining to said Process, is conducting research in that field, has performed a substantial amount of engineering in adapting said Process to commercial use, and has supplied User with results of said engineering pertinent to User's production; and

Whereas, User desires to use said Process and benefit from Ransburg's engineering;

Now, therefore, it is mutually agreed as follows:

1. License: In consideration of the payment by User of the fees herein provided, Ransburg hereby grants to User, subject to and in accordance with all of the terms and conditions of this agreement and while the same is in effect, a nonexclusive, nonassignable license to use said Process at User's plant in ....., with ..... as shown in Ransburg's Drawing No. ..... subject to such changes therein and such further specifications as Ransburg may prescribe, for electrostatically spraying .....

.....

2. Supervision: Ransburg or any of its agents or duly authorized representatives shall have access, without notice and at any time during User's regular business hours, to User's premises where said unit or units are installed for the purpose of determining the manner in and extent to which User is using said Process so that, to the extent Ransburg deems it desirable, Ransburg may make engineering and/or operating recommendations.

3. Liability: User agrees that Ransburg shall not be liable to User for any loss, cost, expense, or damage result-

ing from any failure of said Process to function in any particular manner or to electrostatically coat any particular article or assembly or resulting from the presence, use, operation or condition of the electrostatic unit or units with which said Process is used or resulting from any act or omission of Ransburg's employees or agents while on the premises of User. Also, User agrees to indemnify Ransburg for any loss, cost, expense, or damage Ransburg may sustain because of any claims by third parties resulting from the presence, use, operation or condition of the electrostatic unit or units with which said Process is used or resulting from any act or omission of Ransburg's employees or agent while on the premises of User.

4. Termination: User shall have the right to terminate this agreement at any time upon thirty days' written notice to Ransburg, provided User has fulfilled its obligations hereunder. Ransburg shall have the right to terminate this agreement at any time after three years from the date of Ransburg's acceptance hereof upon six months' written notice to User.

In the event User shall fail to perform any of the conditions or obligations of this agreement, and such failure shall continue or recur after written notice thereof from Ransburg, Ransburg may (without prejudice to its rights to recover any amounts owing by User as herein provided or by any damages for breach of this agreement) terminate this agreement forwith. Any delay, concession, or indulgence on the part of Ransburg in enforcing any of its rights on any default shall not be deemed a waiver of such rights.

5. Fees: User agrees to pay to Ransburg an initial fee of ..... within thirty days after date of acceptance of this agreement by Ransburg. For each calendar month during which this agreement is in effect, User also agrees to pay to Ransburg a monthly fee

The first period for which a monthly fee is payable shall commence on the date User begins to use said Process under this agreement or thirty days after its acceptance by Ransburg, whichever occurs earlier. With respect to any fractional calendar month for which a monthly fee is payable, the basic minimum monthly fee shall be prorated according to the portion of the month for which it is payable. Within ten days after the end of each calendar month for which a monthly fee is payable, User will furnish to Ransburg upon forms furnished by Ransburg, or, in the absence thereof, upon any reasonably adequate form, a written report setting forth in reasonable detail the information upon which the aforesaid monthly fee may be computed and shall pay to Ransburg at its office at Indianapolis, Indiana, the monthly fee payable for said month. User agrees to keep permanent books of account from which the correctness of said written reports can be verified and agrees that such books of account shall be open to inspection by Ransburg or its duly authorized representatives at any time during User's regular business hours.

In addition to the above fees, User agrees to pay or to reimburse Ransburg if it should be obliged to pay, directly or indirectly, any taxes, licenses, or fees imposed by the laws of any State, of any political subdivision, of any municipality, or of any other governmental authority by reason of the use or operation of said Process or the license granted under this agreement. Such sums as may be due under this provision shall be paid separately or added to the invoice for other payments as the law may require or as Ransburg may determine.

During the term of this agreement, the basic minimum monthly fee specified above may from time to time be

adjusted commensurately with changes, from the value for November, 1950, in the Consumer Price Index, Large Cities Combined, All Items, as determined by the Bureau of Labor Statistics of the U. S. Department of Labor, on the 1947-49 base, or any successor thereto; provided, however, no such adjustment shall be made unless a change of at least ten percentage points has occurred in said Index prior to each such adjustment.

6. Execution of Agreement: This agreement sets forth the entire agreement and understanding between the parties as to the subject matter of this agreement, and no statements, conditions, or representations, either oral or written, made by the parties, their employees, or agents, including conditions or provisions appearing in any purchase order or other instrument issued by User, shall be valid or binding unless contained in a written instrument signed by both parties. Ransburg makes no warranties of any kind, express or implied, except as set forth in this agreement.

All the rights and privileges of Ransburg hereunder shall be extended to and inure to the benefit of the successors in business or assigns of Ransburg upon User being given written notice of the assignment of this agreement to such successors in business or assigns and upon the written acceptance by such successors in business or assigns of all Ransburg's obligations hereunder.

This agreement consisting of two pages is submitted in quadruplicate for execution by User. It shall become a contract only upon its execution and acceptance by Ransburg at Ransburg's home office in Indianalopis, Indiana, and shall be effective under the laws of the State of Indiana.

In Witness Whereof, the parties have caused this agreement to be executed by an authorized officer or person effective as of the date of acceptance by Ransburg set forth below.

Executed and accepted by Ransburg this ..... day of ....., 195....

.....(User)

By .....

(Title)

Ransburg Electro-Coating Corp.
(Ransburg)

By .....

(Title)

Exhibit D-36.

Adopted May, 1956.

Ransburg

Electro-Spray Agreement.

User: .....

Plant: ..... Units: ..... Drawing No. .....

Items: .....

Ransburg Electro-Coating Corp., of Indianapolis, Indiana (herein called Ransburg), which owns patents and inventions for electrostatically depositing airlessly atomized (without compressed air) liquid spray particles, herein called "the Process," has done and is doing extensive engineering and research on the Process, and has designed special equipment therefor; and the above User desires to use the Process, engineering and equipment, agree that:

1. License.

During the term and subject to the provisions hereof, Ransburg grants User a non-exclusive license to use the Process at User's plant, with the number of units, in accordance with Ransburg's drawing made a part hereof (subject to such changes in equipment, procedure, and specifications as Ransburg may from time to time designate) for coating the items, all as set forth above.

2. Equipment and Supervision.

At the time requested by User, Ransburg will slip prepaid to the above plant, for use of the Process, high voltage, atomizing, liquid supply and electrical control equipment, and will furnish expert supervision for in-

stalling and placing it in operation. If Ransburg's supervision is required to make more than one trip to User's plant or is there delayed for any reason not chargeable to Ransburg, User will pay Ransburg $75.00 for each day of such extra trip or delay, plus transportation expenses incurred. User shall furnish all other labor, materials and equipment for the installation and use of the Process.

Ransburg will furnish replacements for any defective parts of its equipment at the expense of (1) Ransburg, if the part becomes defective through ordinary wear and tear from proper use and if it is returned prepaid within 30 days after becoming defective, or (2) User, as Ransburg's applicable standard replacement charge, if it becomes defective through improper use or negligence of User, or is not returned within said 30 day period.

Ransburg's obligation to furnish equipment, supervision and replacement parts is subject to availability of the equipment and parts, to prior commitments, fires, strikes, acts of God, governmental decrees or actions, and any other cause beyond Ransburg's control, postponing or preventing performance.

3. Fees.

User will pay Ransburg at Indianapolis, Indiana: (1) An initial fee of $..... sixty days after shipment of Ransburg's Equipment to User, or 30 days after its installation, whichever period expires earlier; and (2) For each calendar month during the term hereof, commencing upon completion of installation of the equipment or on the thirtieth day following shipment thereof, whichever occurs earlier, a monthly fee (pro-rated for any partial initial calendar month) equal to

At the request of either party the minimum monthly fee from time to time shall be adjusted commensurate with changes of not less than ten points from the value for January, 1956 of the Consumer Price Index, Large Cities Combined, All items, of the Bureau of Labor Statistics of the U. S. Department of Labor, on the 1947-1949 base, or any successor thereto.

User will keep and make available for Ransburg's inspection during business hours permanent records of all information required for computing monthly fees. Within 10 days following each calendar month User will furnish to Ransburg a written report containing all information for computing the fee for that month, with User's computation and payment of the fee.

If shipment of the equipment is requested by User more than one year after Ransburg's acceptance of this agreement, Ransburg shall have the right to change the fees and terms of this agreement in conformity with its policy at that time.

4. Title and Use of Equipment.

All equipment furnished by Ransburg shall remain its personal property and in User's possession until returned to Ransburg as herein provided. User will pay Ransburg for any loss, or damage to, Ransburg's equipment while in the possession of User or its agents and upon termination of this agreement will at its expense promptly deliver the equipment, freight prepaid, to Ransburg at Indianapolis, Indiana, in as good condition as when received, except only for ordinary wear and tear from proper use.

User will pay, or reimburse Ransburg for, any taxes or fees imposed by any governmental authority by reason of the installation, possession, use, or location

of any equipment or services furnished by Ransburg hereunder.

User will use the equipment and the Process in accordance with Ransburg's safety and operating recommendations, and will not make any use thereof except as herein provided. Ransburg shall have the right to enter User's premises during business hours to inspect the condition and use of the equipment.

5. Liability.

Ransburg shall not be liable to User for damages resulting from the installation, servicing, presence, use, or condition of Ransburg's equipment at User's plant. User indemnifies Ransburg against all claims of others for any damages resulting from the installation, servicing, presence, use, or condition of Ransburg's equipment at User's plant. Ransburg makes no warranty, express or implied, relative to the Process or equipment.

6. Term.

This agreement shall be in effect from the date of acceptance by Ransburg until terminated as follows: (1) User may terminate as of the end of any calendar month or as of the date of return of Ransburg's equipment, whichever is later, upon 30 days' written notice to Ransburg; (2) Ransburg may terminate as of any date after three years from the acceptance date hereof, upon six months' written notice to User; or (3) Ransburg may terminate forwith should User become insolvent or bankrupt or should any breach or default by User remain uncured for 20 days after written notice thereof from Ransburg, and in any such case Ransburg may enter User's premises and repossess its equipment without it or its authorized represen-

tatives incurring any liability for trespass or other causes and without prejudice to its rights to recover amounts owing it hereunder or damages for breach of this agreement.

This written agreement constitutes the entire agreement between the parties, and no terms or understandings not herein contained (whether included in any purchase order or otherwise) shall be valid or binding unless contained in a writing signed by both parties. This agreement shall be governed by the law of Indiana.

Signed by User on ....., 195....

.....
(User)

By .....
(Title)

Ransburg Electro-Coating Corp.

Accepted by Ransburg on ....., 195....

By .....
(Title)

Exhibit D-38.

Adopted Aug. 1956.

Ransburg

No.

Electro-Spray Agreement.

User:
Plant: Units: Drawing No.
Items:

Ransburg Electro-Coating Corp., of Indianapolis, Indiana (herein called Ransburg), which owns patents and inventions for electrostatically depositing airlessly atomized (without compressed air) liquid spray particles, herein called "the Process," and has done and is doing extensive engineering and research on the Process; and the above User, which desires to use the Process and engineering, agree that:

1. License

During the term and subject to the provisions hereof, Ransburg grants User a non-exclusive license to use the Process at User's plant, with the number of units, in accordance with the drawing made a part hereof, for coating the items, all as set forth above.

2. Use and Supervision

User will use the Process in accordance with adequate safety and operating procedures, and will not make any use thereof except as herein provided. Ransburg's duly authorized representatives shall have the right to enter User's premises during business hours to determine the manner in and extent to which

User is using the Process and, to the extent Ransburg deems it desirable, Ransburg may make engineering and/or operating recommendations.

3. Fees

User will pay Ransburg at Indianapolis, Indiana: (1) An initial fee of $..... within 30 days after the acceptance of this agreement by Ransburg; and (2) For each calendar month during the term hereof a monthly fee (pro-rated for any partial initial calendar month) equal to

At the request of either party the minimum monthly fee from time to time shall be adjusted commensurate with changes of not less than ten points from the value for January, 1956 of the Consumer Price Index, Large Cities Combined, All items, of the Bureau of Labor Statistics of the U. S. Department of Labor; on the 1947-1949 base, or any successor thereto.

User will keep and make available for Ransburg's inspection during business hours permanent records of all information required for computing monthly fees. Within 10 days following each calendar month User will furnish to Ransburg a written report containing all information for computing the fee for that month, with User's computation and payment of the fee.

4. Liability

Ransburg shall not be liable to User for damages resulting from the installation, servicing or use of the Process. User indemnifies Ransburg against all claims of others for any damages resulting from the installation, servicing or use of the Process. Ransburg makes no warranty, express or implied, relative to the Process.

5. Term

This agreement shall be in effect from the date of acceptance by Ransburg until terminated as follows: (1) User may terminate as of the end of any calendar month, upon 30 days' written notice to Ransburg; (2) Ransburg may terminate as of any date after three years from the acceptance date hereof, upon six months' written notice to User; or (3) Ransburg may terminate forthwith should User become insolvent or bankrupt or should any breach or default by User remain uncured for 20 days after written notice thereof from Ransburg.

This written agreement constitutes the entire agreement between the parties, and no terms or understandings not herein contained (whether included in any purchase order or otherwise) shall be valid or binding unless contained in a writing signed by both parties. This agreement shall be governed by the law of Indiana.

Signed by User on ....., 195 .

.....
(User)

By .....
(Title)

Accepted by Ransburg on ....., 195 .

Ransburg Electro-Coating Corp.

By .....
(Title)

UNITED STATES DISTRICT COURT,
(Caption—56-C-262.)

DEFENDANT'S INTERROGATORIES AND PLAINTIFF'S ANSWERS.

Defendant's Interrogatories to the Plaintiff	Plaintiff's Answers to Defendant's Interrogatories
• • • • •	• • • • •
27. Has the Plaintiff entered the field of marketing of a system for coating articles by a process utilizing compressed air spray guns and an electrostatic field for effecting deposition of the coating material?	27. Yes, to the extent of one sale in 1958.
28. If the answer to Interrogatory No. 27 is in the affirmative, then state with respect to such equipment and the marketing thereof:	28.
(a) When such centry was first made.	(a) June, 1958.
(b) Whether any public announcements by trade articles, advertisements or otherwise have been made, and give the dates and identity of all such.	(b) The news of the introduction of Plaintiff's air type electrostatic system appeared in the following publications in the period to October 24, 1958: American Metal Market Paint Industry Magazine Plant Engineering Products Finishing New Equipment Digest Industrial Finishing Steel Industrial Distribution Mill and Factory Automation Metal Products Finishing Gasoline News Automotive Industries American Paint Journal American Machinist New York Journal of Commerce Advertisements for the new system have appeared in various magazines, and a copy of each such advertisement and a list of the magazines in which each has appeared is attached hereto as Exhibit 28b1, 28b2, and 28b3.

Defendant's Interrogatories to the Plaintiff	Plaintiff's Answers to Defendant's Interrogatories
(c) Whether any brochures or advertising folders have been prepared, and give the dates and identity of all such.	(c) Bulletins E-1 and EE-1 both published in June, 1958, attached hereto as Exhibits 28c 1 and 28c 2.
(d) Whether there are one or more types of such equipment offered by the Plaintiff and a description generally of the principal components of each type.	(d) Only one such type has been offered, the principal components consisting of a power pack, controls, spray gun, and electrical grids.
(e) How such equipment is offered or marketed, whether by lease, conditional or outright sale, and supply copies of all forms, if any, of such agreements.	(e) Outright sale. Plaintiff has no specialized forms for such sales, but employs its standard quotation form, a copy of which is attached as Exhibit 28e1.
(f) Whether Plaintiff has, or claims to have, patents, patent rights or patent applications upon all or any part of such equipment, and if so, identify such parts and the applicable patents or patent rights.	(f) No.
(g) Whether such equipment is offered as a complete operating unit, and if so, the price and other terms with respect to each type.	(g) If the customer desires a complete unit, it is sold as such at a fixed price depending on the size of the installation. To date, one such sale has been consummated at a price of $5620.
(h) Whether the components of such equipment are offered separately, and if so, the price and other terms with respect to each component.	(h) Yes. The price list for components is attached as Exhibit 28h1.
(i) Whether Plaintiff furnishes, or will furnish, any services to prospective customers.	(i) Yes.
(j) The nature price and other terms of any engineering services furnished or proposed to be furnished to customers.	(j) Installation services and repair services are to be furnished when requested by the purchaser, the price varying from sixty to seventy-five dollars per day, plus travel expenses.
(k) Whether Plaintiff will run tests at its plant on articles to be coated for prospective customers.	(k) Yes.
(l) Whether Plaintiff has made, or proposes to make, any recommendations to customers as to any types of coating materials to be used with such equipment, or as to solvents or other ingredients in such coating materials.	(l) Yes.

Defendant's Interrogatories to the Plaintiff	Plaintiff's Answers to Defendant's Interrogatories
(m) Whether Plaintiff has furnished, or proposes to furnish, any such equipment to paint manufacturers, and if so, upon what basis.	(m) No such equipment has been furnished to paint manufacturers, and no such proposals are presently under consideration.
(n) Whether the power pack utilized is of the Plaintiff's own design and manufacture or whether it is purchased. If purchased, state the name and location of the source and whether the power pack purchased has any commercial uses other than in electrostatic coating, and if so, name all such other uses.	(n) The power pack for the single consummated sale was purchased from H. G. Fischer Company of Franklin Park, Illinois. The power pack may be used wherever high voltage direct current is required, such as in X-ray machines, precipitrons, and the like.
(o) Whether any guaranty of the equipment or its performance is given or is proposed to be given, and whether such guaranty is in writing.	(o) Plaintiff employs its standard guarantee in its regular quotation form, attached as Exhibit 28e1.
(p) Whether replacement parts are available, or are to be made available, to the customer and the basis upon which such parts are available, or are to be made available.	(p) Replacement parts are available for outright sale.
(q) Whether replacement parts are available from any other source than Plaintiff, and if so, name the parts so available and the sources.	(q) Power packs — from electrical manufacturers such as H. G. Fischer Co., Valves—from valve manufacturers such as Imperial Brass Co. Hose—from hose manufacturers Cable—from cable manufacturers Spray guns—from other spray gun manufacturers such as De Vilbiss Regulators—from regulator manufacturers such as Norgren or De Vilbiss Grids—from hardware stores.
(r) The basis upon which replacements are made available, or are to be made available, to customers.	(r) An outright sale.
(s) Whether repair or maintenance service is furnished, or proposed to be furnished, to customers, and if so, the nature thereof and the charges and terms, if any.	(s) Such services are to be furnished if requested. See answer to 28 (j).
(t) Whether such equipment has been offered, or is to be offered, to any of the persons, firms or corporations shown on the lists of Defendant's customers supplied in answer to Plaintiff's interrogatories in this cause, and if so, to which ones.	(t) Such equipment will be offered to anyone desiring the same.
(u) Whether any such equipment has been sold, leased or placed in the hands of customers. If so, give the names and addresses of all such persons.	(u) One unit has been sold to Lu Van, Inc., of Belding, Michigan.

Defendant's Interrogatories to the Plaintiff	Plaintiff's Answers to Defendant's Interrogatories
(v) Whether any patent infringement indemnification is to be, or has been, given, and attach a copy of an indemnification agreement which is representative.	(v) No such indemnification has been given so far, although Plaintiff may give such an indemnification if called upon to do so in the future.
(w) Whether Plaintiff has procured, or attempted to procure, licenses under any patents of others covering all or any part of the equipment or process referred to in Interrogatory No. 27. If so, give the name and number of each such patent and state whether a license was obtained.	(w) The electrostatic equipment marketed has not been under any patent license.
• • • • • •	• • • • • •
33. Are there any other persons, firms or corporations in the United States, including Defendant, now marketing systems for coating articles by utilizing compressed air spray guns and an electrostatic field for effecting deposition of coating materials? If so, give name and location of each such and state approximately how long each has been so marketing such system.	33. Other than the Defendant, Plaintiff believes the following concerns have marketed systems for coating articles by utilizing compressed air spray guns and an electrostatic field: Ashdee Electrostatic Products, Inc. Homewood, Illinois Scientific Electric Co. Garfield, New Jersey Ionic Electrostatic Corp. Garfield, New Jersey H. G. Fischer Co. Franklin Park, Illinois Staticote Systems, Inc. Chicago, Illinois Plaintiff has no knowledge as to how long each of the above has been marketing such systems.
34. If the answer to Interrogatory No. 27 is in the affirmative, state whether Plaintiff regards the compressed air electrostatic spray painting process, for which its equipment is marketed, as in competition with the airless process for electrostatic spray painting.	34. Yes, to the extent that with some types of articles, both processes produce comparable results.
• • • • • •	• • • • • •
93. Did the Plaintiff at any time have a discussion with representatives of any one or more of the persons, firms or corporations named in answer to Interrogatory No. 33 relative to a possible acquisition by Plaintiff of the electrostatic spray painting equipment business of such firm. If so, give the name and location of all such and give the dates and substance of such discussions.	93. In about 1951, Plaintiff was approached by officials of Ashdee Electrostatic Products, Inc., because Ashdee was seeking financial assistance in the marketing of their air type electrostatic spray coating systems. These negotiations were persisted in by the personnel of Ashdee for about two years, but were terminated.
• • • • • •	• • • • • •

Defendant's Interrogatories to the Plaintiff	Plaintiff's Answers to Defendant's Interrogatories
113. What was the source and date of Plaintiff's first knowledge that such a thing existed as a method for painting or coating by the use of compressed air guns and an electrostatic field for effecting deposition of coating material?	113. Plaintiff's first knowledge of a method for painting by use of compressed air and an electrostatic field was attained in the late 1930's or early 1940's from knowledge of the system being marked by Defendant's predecessor.
114. What was the source and date of Plaintiff's first knowledge that such a thing existed as a method for painting or coating by an airless electrostatic process?	114. Plaintiff's first knowledge of such a method specifically applied to paint was obtained when Defendant first commercialized its "No. 2" system.
115. When did the Plaintiff first conduct any experiments using an electrostatic field in connection with a painting or coating process?	115. Such experiments were first carried out by the Plaintiff's personnel in about 1951.
• • • • • •	• • • • •
122. How many compressed air spray guns, usable for coating or painting, has the Plaintiff sold to customers in the United States in each of the years 1940 to 1958, inclusive?	122 and 123. Plaintiff does not have invoice records for all the years requested in this interrogatory; however for the years 1954 to 1958, the following figures for which plaintiff has invoices are supplied:
123. How many of the guns referred to in Interrogatory No. 122 were hand-operated guns and how many were automatic guns?	

Year	Guns	Automatic Guns
1954	50,663	3,725
1955	76,141	7,135
1956	82,361	6,624
1957	64,180	7,948
1958 (to Oct. 29)	44,845	2,254

• • • • • • • • • •

125. Does the Plaintiff know how many automatic compressed air spray gun systems for coating or painting operations the Plaintiff has sold to customers in the United States in any of the years 1940 to 1958? If so; state such total for each such year.	125.	Year	Number Sold
		1940	18
		1941	71
		1942	115
		1943	38
		1944	71
		1945	89
		1946	52
		1947	33
		1948	46
		1949	45
		1950	66
		1951	93
		1952	60
		1953	142
		1954	98
		1955	156
		1956	181
		1957	107
		1958—Ten (10) Months	118

• • • • • • • • • •

131. Would the following cover substantially all of the commercial methods used for the application of paint in industry to articles of	131. No.

Defendant's Interrogatories to the Plaintiff	Plaintiff's Answers to Defendant's Interrogatories
manufacture: (1) brushing, (2) dipping, (3) flow-coating, (4) roller-coating, (5) lithographing, (6) by compressed air hand gun without electrostatic deposition, (7) by compressed air automatic gun without electrostatic deposition, (8) by compressed air automatic gun and depositing by an electrostatic field and (9) by airless electrostatic spray coating?	
132. If the answer to Interrogatory No. 131 is in the negative, state what other method or methods have any substantial commercial use.	132. Atomization by hydraulic pressure.
• • • • •	• • • • •
136. Based upon Plaintiff's knowledge of the industrial coating field, state as to each of the methods referred to in Interrogatory No. 131 and the answer to Interrogatory No. 132, the methods with which such method is commercially competitive for coating or painting of any manufactured article.	136. The methods may all be competitive with each other, depending on the article, character of the coating, and volume.
137. Does the Plaintiff know of any articles which cannot be painted except by airless electrostatic spray painting.	137. No, if the character of coating and the economics are ignored.
• • • • •	• • • • •
165. With reference to the demonstration of Plaintiff's slotted disc emitter SK-661 conducted at Plaintiff's plant in the presence of personnel of the Defendant in December, 1956, state:	165.
(a) the outer diameter of the emitter;	(a) 4¼ inches
(b) the extent in inches of the slotted portion of the periphery of the emitter to which liquid coating material was delivered;	(b) about 4¼ inches
(c) the extent in degrees of arc of the slotted portion of the periphery of the emitter to which liquid coating material was delivered;	(c) 120 degrees
(d) the width in inches of the slot in the periphery of the emitter to which the liquid coating material was delivered;	(d) 0.007 inches
(e) the radius of curvature, if any, of the outer edge portion of each of the two members forming between them the slot in the emitter from which liquid coating material was delivered for atomization;	(e) the radius of peripheral curvature was 2⅛ in.
(f) the angle of incidence between the inner and outer surfaces of	(f) about 15 degrees

Defendant's Interrogatories to the Plaintiff	Plaintiff's Answers to Defendant's Interrogatories
each of the two members forming between them the slot in the emitter from which liquid coating material was delivered for atomization;	
(g) the closest distance between the emitter and an article being coated;	(g) about 15 inches
(h) the potential existing at the outer edge of the emitter:	(h) approximately 100,000 volts
(i) the potential of the article to be coated;	(i) ground potential
(j) the type, name of the manufacturer, and full specifications (including wave form) of the high voltage source connected to the emitter;	(j) full wave bridge type using high vacuum tube rectifiers; manufactured by H. G. Fischer Co.; rippled d.c. output from 0 to 110,000 volts; 110 volt, 60 cycle, single phase input.
(k) the type, name of the manufacturer, and specifications of the liquid coating material delivered to the emitter;	(k) Glidden Japalac, air dry enamel, No. 1217 Ultra-White
(l) whether or not liquid coating material was supplied at a controlled rate to an atomizing zone;	(l) No, at a controlled pressure
(m) the rate of flow of liquid coating material to the atomizing zone;	(m) 1¼ oz./minute/disk
(n) the viscosity of the liquid coating material delivered to the emitter;	(n) 23 seconds on a No. 2 Zahn cup
(o) the solvents used, if any, in thinning the liquid coating material to the viscosity indicated in the answer to (n);	(o) toluol
(p) whether or not the answers to Defendant's previous interrogatories to Plaintiff Nos. 2(a), (b), (d) and (f), 3, 4, 5 and 6 are equally applicable to this use of the emitter.	(p) yes.
• • • • •	• • • • •
195. When did the Plaintiff first learn of the existence of the agreement between Behr-Manning Corporation and the Defendant, dated September 26, 1944? State from whom such information was obtained and the officer or agent of the Plaintiff first obtaining such knowledge.	195. The Plaintiff first learned of the existence of the agreement between Behr-Manning Corporation and Defendant during the taking of depositions of some of Defendant's officers during September, 1957. Such knowledge was first obtained by the attorneys for Plaintiff.
196. Did the Plaintiff at any time ever endeavor to obtain from Behr-Manning Corporation rights under	196. No.

Defendant's Interrogatories to the Plaintiff	Plaintiff's Answers to Defendant's Interrogatories
any patents or patent applications listed in the Bohr-Manning agreement, dated September 26, 1944, with Defendant?	
• • • • •	• • • • •
198. When did the Plaintiff first learn of the existence of the agreement between Brush Development Company and the Defendant, dated May 3, 1943? State from whom such information was obtained and the officer or agent of the Plaintiff first obtaining such knowledge.	198. Plaintiff first learned of the existence of the agreement between The Brush Development Company and Defendant during the taking of depositions of some of the Defendant's officers during September 1957. Such information was first obtained by attorneys for the Plaintiff.
199. Did the Plaintiff at any time ever endeavor to obtain from Brush Development Company rights under the Gravley Patent, No. 2,359,476?	199. No.
• • • • •	• • • • •
201. When did the Plaintiff first learn of the existence of the agreement between Western Electric Company and the Defendant, dated April 7, 1943? State from whom such information was obtained and the officer or agent of the Plaintiff first obtaining such knowledge.	201. Plaintiff first learned of the existence of the agreement between Western Electric Company and Defendant during the taking of depositions of some of the Defendant's officers during September 1957. Such knowledge was first obtained by attorneys for the Plaintiff.
202. Did the Plaintiff at any time ever endeavor to obtain from Western Electric Company rights under the Pugh Patent, No. 1,855,869?	202. No.
• • • • •	• • • • •
204. When did the Plaintiff first learn of the existence of the agreement between Research Corporation and the Defendant, dated October 7, 1948? State from whom such information was obtained and the officer or agent of the Plaintiff first obtaining such knowledge.	204. Plaintiff first learned of the existence of the agreement between Research Corporation and the Defendant during the taking of depositions of some of the Defendant's officers during September 1957. Such information was first obtained by the attorneys for Plaintiff.
205. Did the Plaintiff at any time ever endeavor to obtain from Research Corporation rights under the Meston Patent, No. 2,097,233, or the Wintermute Patent, No. 2,221,338?	205. No.
• • • • •	• • • • •

DEFENDANT'S REQUEST FOR ADMISSIONS AND PLAINTIFF'S ANSWERS.

Defendant's Request for Admissions	Answers to Defendant's Requests for Admissions
1. Plaintiff is a Delaware corporation, with its principal place of business in the City of Chicago, Illinois; has been in business since 1892; sells a line of merchandise for industry under the slogan, "Everything for Spray Painting"; has branch offices or warehouses in twenty-eight major cities in the United States; and is one of the two largest merchandisers of spray painting equipment in the United States.	1. Admitted with the qualifications that during the past plaintiff's name was changed; its predecessors beginning in 1892, were Star Brass Works, and Binks Spraying Company up to 1929 when the present name was adopted; and secondly 3 of the 28 branch offices are in Canada.
• • • • •	• • • • •
3. Plaintiff first learned of electrostatic spray painting in November, 1942, when several of its representatives attended a demonstration at the laboratory of Defendant's predecessor, Harper J. Ransburg Co., at Indianapolis, Indiana.	3. Denied, except that plaintiff admits that in December 1942, at the invitation of Defendant, several of its representatives attended a demonstration of Ransburg's air-type No. 1 electrostatic coating system at Indianapolis, Indiana.
4. Plaintiff did not undertake any research or development in the field of electrostatic spray painting until January, 1951.	4. Denied, but plaintiff admits it first purchased a power pack in January 1951 in its efforts to develop an electrostatic spraying system but that previous thereto it had discussions of such system.
5. In 1952 Plaintiff attempted, but failed, to hire Harry Green and William A. Starkey, former employees of the Defendant, for the purpose of developing electrostatic spray painting equipment for the market.	5. Plaintiff admits that around 1952 Harry Green and William A. Starkey had unsuccessful negotiations with plaintiff for employment but denies that such negotiations were limited to the purpose stated.
• • • • •	• • • • •
7. Plaintiff's SK661 emitter was developed as a result of research in 1953 and 1954, and a drawing of said emitter was made and dated on May 12, 1954.	7. Admitted except that the research referred to was only part of the research, plaintiff having previous to 1953 also conducted research in the prior art and in development which culminated in the system making use of the SK-661 specific design of emitter.
8. Plaintiff learned of the existence of the Starkey process patent, No. 2,685,536, shortly after its issuance on August 3, 1954, and thereupon Plaintiff discontinued active research and development in the electrostatic spray painting field.	8. Admitted as to the airless electrostatic painting field but otherwise denied.
• • • • •	• • • • •
11. At the present time, systems for electrostatic spray painting with the use of compressed air guns or emitters are marketed by the following firms, in addition to Defendant:	11. (a) (b) (d) (e) (f) Plaintiff is not apprised of what the concerns mentioned are doing at the present time although it understands such concerns have or may have within the last several

Defendant's Request for Admissions	Answers to Defendant's Requests for Admissions
(a) H. G. Fischer and Company 9543 West Belmont Avenue Franklin Park, Illinois	years marketed compressed air gun electrostatic systems.
(b) Ashdee Electrostatic Products, Inc. Homewood, Illinois	
(c) Genco Equipment Company 14101 Prairie Avenue Detroit 38, Michigan	(c) Plaintiff has no knowledge of any such marketing by this concern.
(d) Ionic Electrostatic Corp. 105-119 Monroe Street Garfield, New Jersey	
(e) Scientific Electric Company 105-119 Monroe Street Garfield, New Jersey	
(f) Staticote Systems, Inc. 1373 South Layden Avenue Chicago 27, Illinois	
(g) Binks Manufacturing Company Chicago, Illinois	(g) Admitted only to the extent of one system installed in 1958.
• • • • •	• • • • • •
14. Plaintiff has never attempted, and is not now attempting, to engage in the business of selling or dealing in used equipment for electrostatic spray painting of the compressed air type.	14. Admitted as plaintiff has only very recently sold only one air-type electrostatic spraying system.
15. Plaintiff has never attempted, and is not now attempting, to engage in the business of selling or dealing in used equipment for electrostatic spray painting of the airless type.	15. Admitted as Plaintiff has never been successful in breaking into defendant's monopoly of the airless type of electrostatic coating market.
16. The only equipment which Plaintiff has attempted to market for airless electrostatic spray painting is its SK661 emitter and the equipment related thereto.	16. Admitted.
17. The only prospective vendee to which Plaintiff has attempted to sell or furnish airless electrostatic spray painting equipment is the Ford Motor Company.	17. Admitted.
18. Plaintiff has made no proposal for the sale or furnishing of its SK661 and related equipment to Ford Motor Company or to any other prospective vendee which was not subject to the express provision, in substance, that the prospective vendee indemnify Binks Manufacturing Company and hold it free and harmless against any and all suits or causes of action which might be brought against it for infringement and/or contributory in-	18. Admitted.

Defendant's Request for Admissions	Answers to Defendant's Requests for Admissions
fringement of the Starkey process patent, No. 2,685,536, by reason of manufacturing and furnishing to such vendee the devices comprising the subject matter of such proposal.	
. . . . .	. . . . .
22. Plaintiff did not know of the existence of the following until after the commencement of the instant action:	22. (a) (b) (c) (d) Admitted.
(a) Assignment to Harper J. Ransburg Co. from Western Electric Co., executed April 7, 1943.	
(b) Agreement of May 3, 1943, between Harper J. Ransburg Co. and Brush Development Co.	
(c) Agreement of September 26, 1944, between Harper J. Ransburg Co. and Behr-Manning Corporation.	
(d) Agreement of October 7, 1948, between Defendant and Research Corporation.	
23. With respect to the Pugh patent, No. 1,855,869, which Harper J. Ransburg Co. purchased from Western Electric Co. pursuant to an assignment executed April 7, 1943:	23.
(a) Said patent was upon an invention which did not relate to processes or apparatus for airless electrostatic spray painting.	(a) Denied and especially as said patent can be said to cover any invention.
(b) Said patent expired on April 26, 1949.	(b) Admitted.
(c) Plaintiff at no time has attempted to secure a license from anyone under said patent.	(c) Admitted.
(d) So far as Plaintiff knows, no one other than Plaintiff has attempted at any time since April 7, 1943, to secure a license under said patent to make and sell electrostatic spray painting equipment or installations.	(d) Plaintiff denies that it ever sought a license under this patent and has no knowledge of any one who sought a license for the purpose stated.
24. With respect to the Gravley patent, No. 2,359,476, which Harper J. Ransburg Co. acquired as a result of its agreement of May 3, 1943, with Brush Development Co:	24.
(a) Said patent was upon an invention for removing excess liquid coating material from articles, which did not relate to processes or apparatus for electrostatic spray painting.	(a) Denied and especially as said patent can be said to cover any invention.

Defendant's Request for Admissions	Answers to Defendant's Requests for Admissions
(b) Plaintiff at no time has attempted to secure license from anyone under said patent.	(b) Admitted.
(c) So far as Plaintiff knows, no one other than Plaintiff has attattempted at any time since May 3, 1943, to secure a license under said patent to make and sell electrostatic spray painting equipment or installations.	(c) Plaintiff denies that it ever sought a license under this patent and has no knowledge of any one who sought a license for the purpose stated.
25. With respect to the Meston patent, No. 2,097,233, under which Defendant obtained an exclusive license from Research Corporation, pursuant to an agreement dated October 7, 1948:	25.
(a) Said patent was upon an invention which did not relate to processes or apparatus for airless electrostatic spray painting.	(a) Denied and especially as said patent can be said to cover any invention.
(b) Said patent expired on October 26, 1954.	(b) Admitted.
(c) Plaintiff at no time has attempted to secure a license from anyone under said patent.	(c) Admitted.
(d) So far as Plaintiff knows, no one other than Plaintiff has attempted at any time since October 7, 1948, to secure a license under said patent to make and sell electrostatic spray painting equipment or installations.	(d) Plaintiff denies that it ever sought a license under this patent, and has no knowledge of any one who sought a license for the purpose stated.
26. With respect to the Wintermute patent No. 2,221,338, under which Defendant obtained an exclusive license from Research Corporation, pursuant to an agreement dated October 7, 1948:	26. (a) Denied and especially as said patent can be said to cover any invention.
(a) Said patent was upon an invention which did not relate to processes or apparatus for airless electrostatic spray painting.	
(b) Said patent expired on November 12, 1957.	(b) Admitted.
(c) Plaintiff at no time has attempted to secure a license from anyone under said patent.	(c) Admitted.
(d) So far as Plaintiff knows, no one other than Plaintiff has attempted at any time since October 7, 1948, to secure a license under said patent to make and sell electrostatic spray painting equipment or installations.	(d) Plaintiff denies that it ever sought a license under this patent, and has no knowledge of anyone who sought a license for the purpose stated.
27. The exclusive licenses obtained by Defendant from Research Corporation under the Meston patent, No. 2,097,233, and the Wintermute	27. Admitted with the following qualifications, while the license agreement speaks for itself and plaintiff does not have the originals

Defendant's Request for Admissions	Answers to Defendant's Requests for Admissions
patent, No. 2,221,388, pursuant to the agreement of October 7, 1948:	of the correspondence as to this agreement of defendant it would appear from copies of letters furnished by defendant to plaintiff,
(a) Were by the terms of said agreement convertible to non-exclusive licenses at the election of either party at any time after June 30, 1951, upon six months' notice.	(a) that the license was convertible as alleged, and
(b) Were converted to non-exclusive licenses by Defendant, upon notice given on May 26, 1954.	(b) that defendant apparently did notify Research Corporation that it was exercising its right to convert license to a non-exclusive one.
• • • • •	• • • • •
29. The assignment to Harper J. Ransburg Co. from Western Electric Company, executed April 7, 1943, did not prevent Plaintiff from manufacturing, selling or otherwise marketing installations for:	29. (a) (b) Denied and especially as plaintiff was without knowledge of such assignment until recently and long after the filing of this suit and hence the assignment itself did not influence either way plaintiff's marketing decisions.
(a) Air-type electrostatic spray painting.	
(b) Airless electrostatic spray painting.	
30. The agreement of May 3, 1943, between Harper J. Ransburg Co. and Brush Development Company, did not prevent Plaintiff from manufacturing, selling or otherwise marketing installations for:	30. Denied and especially as plaintiff was without knowledge of such agreement until recently and until long after the filing of this suit and hence such agreement in itself had nothing to do with any marketing decisions of plaintiff.
(a) Air-type electrostatic spray painting.	
(b) Airless electrostatic spray painting.	
31. The agreement of September 26, 1944, between Harper J. Ransburg Co. and Behr-Manning Corporation, did not prevent Plaintiff from manufacturing, selling or otherwise marketing installations for:	31. Denied and especially as plaintiff was without knowledge of such agreement until recently and long after the filing of this suit and hence such agreement in itself had nothing to do with any marketing decisions of plaintiff.
(a) Air-type electrostatic spray painting.	
(b) Airless electrostatic spray painting.	
32. The agreement of October 7, 1948, between the Defendant and Research Corporation, did not prevent Plaintiff from manufacturing, selling or otherwise marketing installations for:	32. Denied and especially as plaintiff was without knowledge of such agreement until recently and long after the filing of this suit and hence such agreement in itself had nothing to do with any marketing decision of plaintiff.
(a) Air-type electrostatic spray painting.	
(b) Airless electrostatic spray painting.	

PLAINTIFF'S EXHIBIT MMMM.

EMERY P MILLER, being first duly sworn to testify the truth, the whole truth and nothing but the truth relating to said cause, deposes and says:

Direct Examination, Questions by Mr. Charles F. Meroni.

Q. 1. Please state your name.

A. Emery Parker Miller.

Q. 2. Where do you reside?

A. 641 East 80th Street, Indianapolis.

Q. 3. How old are you, sir?

A. Forty-nine years old.

Q. 4. By whom are you at present employed?

A. Ransburg Electro-Coating Corporation.

Q. 5. Of Indianapolis?

A. That is correct, sir.

Q. 6. How long have you been employed by that company?

A. Since that company was formed.

Q. 7. You have any offhand recollection of the year? Or the approximate year?

A. Approximately 1948, something around there.

Q. 8. Were you employed also by the predecessor partnership?

A. I was.

Q. 9. And how long were you employed by that company?

A. I came to work for that organization continuously in July of 1943.

Q. 10. So that you have been with the Ransburgs since July of 1943 to the present time, is that correct?

A. That is correct.

Q. 11. By whom were you employed previously?

A. I was employed by Purdue University.

Q. 12. In what capacity?

A. I was assistant professor in the physics department.

Q. 13. And how long had you been so employed?

A. I had been employed as an assistant professor for three years. Prior to that time I had worked as an instructor and a graduate student for the University and went there in 1930.

Q. 14. As an instructor or student in 1930?

A. I went there as a student in 1930, graduate assistant, actually.

Q. 15. Had you finished your undergraduate work at that time?

A. Yes, sir, I had.

Q. 16. Where did you take your undergraduate work?

A. Lafayette College in Easton, Pennsylvania.

Q. 17. Did you receive a degree at the university?

A. I received my A.B. degree from there and also my Master's Degree.

Q. 18. In what field did you major?

A. I majored with economics with a minor in science.

Q. 19. Any particular field of science?

A. Physics.

Q. 20. And in your graduate work at the University of Purdue what did you major in?

A. Majored in physics also there.

Q. 21. And I understand you have a PhD.?

A. That is correct, sir.

Q. 22. And did you write your thesis in physics?

A. Yes.

Q. 23. In what particular field of physics?

A. In x-rays and crystal structure.

Q. 24. In the course of that work, both at the University of Purdue and previously in your work and study at Lafayette University—

A. (Interposing.) Lafayette College.

Q. 25. Did you have occasion to become familiar with electrostatic devices?

A. Yes, I did.

Q. 399. Who conducted tests of installations that you were going to make, in advance of making the installations?

A. The men in the laboratory conducted those.

Q. 400. Had you had anything to do with that?

A. I usually had supervision over some of those tests if they happened to fall under my direct jurisdiction.

Q. 401. Tell us what a typical test would amount to.

A. A typical laboratory test?

Q. 402. Yes, preliminary to setting up the monthly fee for an installation.

A. Well, preliminary to the customer coming to the plant, of course you had to incite his interest somehow, and once you had that to the point where he was convinced that we probably could do him some good, he was invited to the laboratory to actally see the process being used on his particular parts and was asked to send parts and his coating material to the laboratory and preliminary tests were run in advance of his coming to make sure that we were ready for his visit and to make sure of how we would handle the item, how it should be run and paint reduced to give the type of result that particular customer wanted, and then the customer was invited in and a demonstration was actually carried through for him in which samples, if he desired them, were prepared for him and he would take them back with him. Coating material was measured and mileage measurements were run through and we determined basically what requirements by way of physical set-up would be necessary to actually carry out his particular operation in his plant.

Q. 403. Now, these mileage ratings of paint run through

were used in determining what savings might be effected by a particular customer?

A. How many pieces a gallon that customer could expect to obtain with this.

Q. 404. Under conditions as set up in your shop?

A. Which approached his production operation as closely as possible. If they didn't he modified them so they did. That was the reason to have him in.

Q. 405. And your monthly fees were then calculated on the basis of possible saving that he might effect as determined by your tests at the plant?

A. Well, our monthly fee was a specific schedule. It was set out for a particular type item.

Q. 406. But it varied for each installation, did it not?

A. Not once the customer was determined and then the type of item this customer wanted to run.

Q. 407. But a particular item might be different from that set up for another item?

A. Yes, that is correct.

Q. 408. Depending upon how much savings can be effected in using your equipment?

A. Basically I suppose it would all go back to that, yes. We had a specific schedule whereby the shape of the item, the size of it, etc., had been worked out and given to us, which would in advance allow us to tell the man how much that particular item, what percentage of the paint used with our equipment would be asked as our fee from him.

Q. 409. Well, isn't it true that in many cases because of your background and experience you were able to make a much more efficient setup and operation at your plant that he would come in to see than he would have in his shop?

A. Certainly than he had in his shop, yes, because he did not have electrostatic methods generally available in his shop.

Q. 570. Now, in the scientific fields and in the coating fields with which you are familiar, when did you first observe a uni-directional high voltage electrostatic field being used to detear liquids?

A. To detear liquids?

Q. 571. Yes.

A. I first saw the operation in the Ransburg plant.

Q. 572. When, approximately?

A. Some time before 1940.

Q. 573. And what did you observe at that time?

A. I observed particles being removed, ink particles being removed from articles on a conveyor that had been dipped.

Q. 574. By an electrostatic process?

A. That is correct.

Q. 575. Did you ever see the detearing process commercially in the field?

A. At that time?

Q. 576. Or subsequent.

A. Subsequently I have, yes.

Q. 577. Approximately when did you first see the detearing process in the field? Commercially used.

A. I believe it was in 1943.

Q. 578. Do you personally recall the installation or where it was?

A. It was being used in the Ransburg plant.

Q. 579. For a commercial operation?

A. That is correct.

• • • • •

DR. EMERY P. MILLER, a witness called by the defendant, being first duly sworn, testified as follows:

Direct Examination.

* * * * * *

Q. When did you first start to work for the Ransburg Company, the Defendant in this case, or its predecessor?

A. 1938 I began to be associated with the Ransburg Electro-Coating Corporation on a consulting basis. I first came to work with them permanently in 1943.

Q. What was the nature of the consulting work that you did?

A. I worked with Harold Ransburg in connection with the initial investigation of the No. 1 electrostatic spraying process, particularly with regard to the development of the high voltage equipment.

Q. And for how long a period did that consulting work continue?

A. From 1938 until 1943.

Q. How extensive was your association with them in the consulting capacity?

A. It amounted to possibly a contact once a month until 1940 at which time I spent the entire summer here in Indianapolis with the organization and then from 1940 until 1943 there was periodic contacts with the Ransburg people.

Q. And you went with them permanently at what date?

A. July of 1943.

Q. And what was the nature of your work at that time when you first went with them?

A. I came with the organization as the Director of Research and Development.

Q. What were the duties of that particular position?

A. Basically to do and to direct the development of others in our organization and to do research myself.

Q. In what field was your research directed?

A. In the field generally related to electrostatic coating.

Q. Did you have anything to do with the research that led up to the development of the No. 1 System?

A. The No. 1 System was actually developed and I helped advance it, I'd say.

Q. Did you have occasion at that time to make a study of the state of the art generally as it existed in the commercial field with respect to electrostatic painting?

A. After I came with the organization, I did look into that art, yes, sir, and make myself acquainted with it.

Q. What was the situation with respect to whether or not there were competitive or there were any electrostatic painting systems available on the market at that time, 1943?

A. The only electrostatic painting process available on the market in 1943 was the Ransburg operation and method.

Q. And I think you mentioned that you had something to do with the designing of some of the equipment or looking into some of the equipment. Was that at the outset of your work?

A. When I came with the Ransburg organization, there was not available voltage equipment which was suitable from a safety standpoint for our work and I helped in the design and development of that particular device.

Q. What voltage equipment was available at that time?

A. At that time the voltage equipment which was available was either the static induction type of equipment, which has been referred to as the Wimhurst machine or there would have been available voltage supplies of the

tube and transformer type which were used generally in X-ray work or in dust or smoke precipitation work.

Q. In your statement that these weren't suitable, in what way were they not suitable?

A. This type of equipment was designed basically to produce high voltage at reasonably high currents; depending upon the use to which you are going to put that high voltage would determine exactly what the current output of those units would be. In the case of precipitation it might be in the neighborhood of four or five hundred milliamperes; or in the case of X-ray work it might be in the neighborhood of zero to a hundred milliamperes—generally in the high side of that range depending upon the tubes that you were using.

Q. What was done,—what was the first thing you did toward undertaking to secure adequate voltage equipment?

A. Well, realizing that there was no packs available which were generally safe,—at least that we felt were safe for our equipment—it was my job to design to the best of my ability such a pack. Because we had approached several people with regard to producing such equipment, and various factors influencing the picture, we were not able to get on the commercial market such equipment at that time. So I worked with Mr. Arthur Darling in the construction of four or five voltage packs for our particular use.

Q. Was such a pack designed?

A. Yes, sir.

Q. By you?

A. Yes, sir.

Q. Who is Mr. Darling?

A. Mr. Darling was a local electrician here in the City of Indianapolis who operated, I might say, a type of job shop operation with regard to electrical equipment. And

he was working with Harold Ransburg, and so we employed him to build these packs which we designed.

Q. You have used the word "pack." Would you explain what you mean by a pack?

A. Well, a voltage pack is a piece of equipment which is designed to produce voltages. It came about, I think, basically from the earlier radio work when originally battery sets were the vogue, and then people took vibrator type rectifiers and dry type rectifiers and combined them into a box which was used to replace batteries, and so they were sold on the market as packs, voltage packs. And the word—the connotation was carried over into the field to mean any type of voltage supply.

Q. Did you take any steps to secure packs of your design?

A. Yes, we went to General Electric Company in Schenectady to interest them in producing equipment for us either of our own design or of their design.

Q. What was the outcome?

A. At the time they advised us that the design would be considerably involved and it would take a matter of probably three or four months to get such equipment, which was a major obstacle, of course, to us at that time in our operation. And in addition the cost would be quite high for the volume or the quantity that we were interested in buying at that time. Obviously we were only interested in buying one or two, and when you take a firm like General Electric it probably might be a very minor order and the cost would have been prohibitive.

We also approached Westinghouse, RCA and General Electric, I might add—in addition to General Electric. Pardon me.

Q. Were there any other items that constituted a system of the type we have referred to as the No. 1 that you had in contemplation at that time which was not available on the market?

A. Yes, there were. The fluid regulation presented a problem to us because we were confronted with the idea of having very low fluid delivery, which means automatically with the methods that were available at that time that you had to have a very low air pressure on the paint supply source, and had to regulate that pressure very carefully. The ordinary regulators which were available on the market at that time for the pressure ranges of one, two or three or four pounds gave us fluctuations which we couldn't tolerate, so we were concerned also with the design of pressure regulators.

Q. The pressure regulators, do they have to do with the feeding of paint?

A. Yes, that would be the control of the air pressure which was placed on the supply in order to raise the fluid to the atomizing device.

Q. Were there any other parts of the system that were unavailable?

A Well, to the degree that you had a particular type of voltage supply, the electrical controls likewise would have been a new item, or an item which would necessarily have had to have been designed.

Q. What items in the system were available on the market at that time?

A. Well, spray guns were available at that time to the limited extent that spray guns could be marketed or could be purchased. This was during the war, of course, and things were all tight. The purchase of spray guns was on a six to eight months delivery with a—I have forgotten the initials now—but with a priority from the Government to purchase such equipment.

Actually even the purchase of copper wire was a detailed problem at that time.

Q. What was done by Ransburg with respect to acquir-

ing equipment for use in their No. 1 Systems to the extent that such equipment was available on the market?

A. Actually we, naturally, using spray guns with our equipment approached the various spray gun manufacturers with regard to obtaining that equipment; and to the extent that it was available, we actually purchased some of it or had our users purchase some of that equipment.

With regard to the fluid regulators, we purchased such fluid regulators and actually had tested them, I might say, and tried to use them in our equipment to the best of our ability.

In addition we went out on the market and purchased elements which were available that we could combine into a satisfactory air pressure regulator at these lower values.

Q. Who were the sources of supply of air guns at that time?

A. There was Binks, DeVilbiss and Pasche were the basic ones.

Q. And is that Binks that is a party in this suit that you refer to?

A. That is correct, sir.

Q. During your early association with Ransburg did you have occasion to become familiar with the conventional compressed air type of spray gun for painting?

A. I made it my business to become acquainted with such devices, yes, sir.

Q. Did you become familiar with the construction and the character of operating such guns?

A. I did, sir.

Q. Incidentally, from the period of 1938 to 1943 what was your position at Purdue University?

A. Beg pardon? I didn't get the last part.

Q. What was your position at the University? What was your job at Purdue University during the period of '38 to '43?

A. I was assistant professor in the Physics Department.

Q. Would you explain to the Court, please, the general nature of a compressed air gun for painting and describe briefly how it works and what effects the atomization of the paint?

A. I suppose generally you could classify such devices as two types basically, those which were arranged to be used by hand or manipulated by hand, and those which were arranged to be mounted in fixed position and operated by some sort of remote control device.

Basically the hand gun type consists of a pistol-type configuration arranged to be held in the hand and with a trigger that is actuated like an ordinary revolver. When the trigger is pulled back it allows coating material to flow from a supply or a hose into the gun; and generally in this type device that exits from a small orifice at the center front of the gun. About that orifice there is usually a slot or opening arrangement which is annular, and from that orifice there is an air flow allowed to pass when the trigger is pulled back simultaneously with the injection of the fluid. Sometimes by pure mechanics they cause a slight delay in the air flow, in the paint flow, so that you have a stream or jet of liquid exiting from the center of the device into an air stream which is annular in cross section.

The relative velocity of the air and the liquid causes that stream to be disrupted, just as wind blowing across the surface of the ocean causes waves, picks up spray, small particles; so here the air passing across the surface of the stream causes ripples or waves in that stream and picks up and breaks that paint up into small particles.

With that much of the device you would only have a round or annular shaped spray, obviously.

In order to make that spray adaptable to other shapes and devices there are what we refer to in the trade as horn

holes. In other words, the air cap itself is built so that displayed outwardly on a diameter or a radius from the center of the orifice there are other holes which are directed at an angle so that they now come in and impinge on this centrally formed spray, and their impingement causes the spray to go from a round cross section out into a shape which might be considered oval or elongated in one direction with respect to its axis; and those characteristics now are transferred generally to the automatic or the permanently mounted equipment, with the exception of the fact that such devices have an additional cylinder attached to the back of them,—usually an air-operated cylinder which is there for the purpose of doing in the fixed gun what the hand did in the other gun, namely, retract the valve which allows the paint and the air to flow through the device.

Q. Does your description that you have just given describe the activity of the compressed air gun that was demonstrated at the Ransburg plant for the Court yesterday?

A. That is correct, the first gun shown was a hand gun; and in the second demonstration it was an automatic gun.

Q. Did you have anything to do with conducting the demonstration that was given yesterday?

A. Yes, I did, sir.

Q. Under whose general supervision was that demonstration generally conducted?

A. It was conducted generally under my guidance and supervision.

Q. What is the condition of the spray produced by the compressed air gun such as is required for satisfactory painting of an article, that is, producing a satisfactory coating of an article with paint?

A. The condition of that spray would be that it is

spread out over a relatively large area and that the particles be of a correct size so that you obtain the coating that you are interested in obtaining.

Q. What do you mean by "spray coating"?

A. Obviously as you spray material or break it up into its components, you are going about the operation of increasing the exposed areas, the area which is exposed to the atmosphere. The smaller the particle gets, the larger the amount of the area exposed and that means greater the evaporation rate of the fluid that is intended to keep the particle wet. As you go to a very small particle, obviously this increases—this decrease in size causes increase in operation with the result of dryness or dusting of the spray. Obviously that is not a desirable feature because it ends up being rough on the surface.

Q. Now, what is the situation when you are using hand guns with respect to—I should say hand guns of compressed air gun with respect to the economies of the usage of paint spray?

A. That will depend considerably upon the object you are spraying. If you were to use a hand gun for spraying an object like a piece of cyclone fence or expanded metal, obviously the proportion of the open space to the proportion of the surface being coated enters the picture and you might get efficiencies that are only on the order of 10% perhaps.

Q. 10% meaning what?

A. 10% of the material that is leaving the bucket or container ends up as useful material on the object which you are spraying.

Q. What happens to the other 90%?

A. In the case of cyclone fence it is usually collected around the neighborhood on cars, and that sort of thing; but in the case of industrial operation, that would be col-

lected in devices scientifically designed to collect and get rid of the over-spray.

Q. What kind of devices are those?

A. They might be one of several types; might be what are referred to as generally spray booths, enclosures in which this operation is designed to take place, and they basically consist of an enclosure or a house or room which is ventilated by a suitable fan and duct work that goes to the outside. Now, obviously it does not do you any good if you collect it into the stack and pump it outside into the air, so you put some technique or mechanism in the booth to collect that over-spray and that might take the form at the present time as dry filters, pads of one type or another, glass wool, something of that nature, which are intended to mechanically interrupt the flow of this stream or might take the flow of a water curtain where you actually scrub or wash the air on the outside and take out of it the paint particles entrained or entrapped in the air stream.

Q. Now, you referred to an object being painted in the nature of a cyclone fence or other open object. What would be the situation with respect to objects of large surface in the nature of panels, for instance? What would be the economies in that respect?

A. In the case of a panel obviously the edge of a panel is not in any different circumstance than the cyclone fence. As the spray or the manipulation of the device moves, you —to the edge of the panel—you are going to get a percentage of over-spray, and in order to eliminate that edge paneling effect, it is generally accepted technique to actually shut the gun off as you come to the edge, trying to eliminate some of the blow-by or the over-spray. At the center of the panel you also have an effect which probably best could be described as a snow-drift type of action; in other words, air with paint particles in it comes in contact with a surface,

the air is going to turn and redirect itself and carry with it some of these particles, so you have what is known in the trade as bounce or—well, that is probably as good a name as any, bouncing of air streams with particles in it even though you are aiming at a continuous flat surface, that bounce, once it is redirected, never gets directed back to your surface pan. It is picked up in the exhaust stream and carried out as an over-spray also.

Q. Now, can you—

A. (Interposing.) In that case I might add the efficiency would probably come, might be—I know of one particular case where a well trained operator, it can obtain on a refrigerator-type surface, the side of a refrigerator can obtain 55 to 60 per cent efficiency. Normally it would fall below that because operators are not too careful and well trained.

Q. Taking into account the range of objects that are usually manufactured in industry that are painted by the compressed air type of gun, what would you say is the average utilization of paint as compared to the wastage of paint on the average for the whole group of objects?

Mr. Meroni: Your Honor, I object to that question. There is no foundation laid for this question to show this man is qualified to testify about the whole industry. He can testify as to about his own experiences but there is no evidence he has made any surveys in the field.

Mr. Hume: I will ask him—

Q. (By Mr. Hume.) Within the realm of your experience and knowledge and taking objects as types and running the gamut from the panel type to the most open type and averaging it out, what would be the—

Mr. Meroni: (Interposing.) I will withdraw the objection if he will limit his experience at his employment.

Q. (By Mr. Hume.) You may answer.

A. Obviously I have no way of telling what percentage

or I never ran a survey on what percentage of small items are sprayed in industry compared to large items; but to the extent that would enter the picture, I am quite certain the average efficiency obtained in industry at least to my experience with an air type gun is never much greater than on the average would be, say 35, 30%.

Q. Well, now I am going—

Mr. Hume: May I have the No. 1?

(The defendant, for purposes of identification, handed the Reporter a certain document for marking, and which was by said Reporter marked Defendant's Exhibit No. 7.)

Mr. Hume: Your Honor, I have just handed the witness a small copy of the chart that I am now putting on the easel, a copy of which the Court I think also has, with the idea the smaller one will be offered in evidence and the bigger one will be used just for illustrative discussion purposes in the Court.

Q. (By Mr. Hume.) And by referring to this chart I will first ask you, Dr. Miller, what this chart shows, if you know. What is it?

A. This chart is a typical No. 1 electrostatic spraying installation.

Q. Do you know anything about the origin of this particular drawing?

A. Yes. This drawing is reproduced from a service manual put out by Ransburg Electro-Coating Corporation for this type of equipment.

Q. Now, referring to Defendant's Exhibit 7, would you describe to the Court what is shown here and how it works?

The Court: Do you want to offer Exhibit 7 before we go on?

Mr. Hume: I will offer Exhibit 7 if your Honor please.

(Defendant's Exhibit No. 7 offered in evidence by Mr. Hume.)

The Court: Exhibit No. 7 is admitted and exhibited into evidence.

(DEFENDANT'S EXHIBIT NO. 7 is admitted and read into the evidence, and made a part of the record in this case, said exhibit being in the words and figures following, to-wit:)

(Here Insert.)

• • • • •

Q. How do the guns that are shown in this System compare with the guns that you have described as being compressed air guns that were utilized in the painting field prior to the introduction of the No. 1 System?

A. These are guns of the automatic type that I described, guns that are made to be positioned and then remotely operated.

Q. Are you familiar with the so-called No. 1 type of System that was first marketed by the Ransburg Company?

A. I am, sir.

Q. How does this representation of Exhibit 7 compare with the Systems that were marketed by Ransburg designated No. 1 System?

A. In essence they are the same, with the possible difference of the arrangement of the electrical controls and the air controls. Basically they are identical.

Q. Is there any difference in the basic operating principle?

A. The basic operating principle in this illustration and the one which was used originally by the Ransburg people is the same.

Q. Would you compare for us, please, the System illustrated in Exhibit 7 which you have just described and the demonstration that was made for the Court yesterday at the Ransburg Plant which was conducted second in the series?

A. This is essentially the same setup, although it differs from that setup in certain physical characteristics and physical arrangements. Actually the parts in that demonstration were carried from the other side. This might be considered to be a righthanded entry into the booth and into the field; whereas in the demonstration that we had at the plant yesterday the parts entered from the left side of the electrostatic field. The guns were on the opposite side of the conveyor under those circumstances. But basically, this is the general arrangement of the electrode and the parts on the conveyor. I believe in our demonstration the bottom electrode was not included.

Q. How does the source of power here, as represented in Exhibit 7 compare with the power packs that you stated that you did some designing on and that you secured from Mr. Darling, I think it was?

A. This pack essentially represents that piece of equipment that was designed at that time.

Q. Incidentally, how does this pack of your design compare with the earlier ones that you said were unsafe?

A. This particular piece of equipment as shown in this figure and as designed originally by myself for the Ransburg Corporation is what would be referred to as a single step transformer and tube arrangement. In other words, it is a simple arrangement to the extent that it involves only a secondary coil of the transformer and a tube which is intended to rectify that current. In other words, there is absolutely no electrical capacity which can create storage problems, electrical storage problems in this unit. And that is important in view of the fact that we are using here a piece of equipment that we want to put in a man's plant. The operator can walk around it, and it is highly important that there be very little electrical current available; because if it were available obviously contact with it might be lethal.

Now, it is part of our design problem to get rid of that distributed capacity, the electrical capacity, which would store up electrical energy; and when the output of this pack was contacted all of that stored energy would come out as a surge before the electrical characteristics of the unit could take over and bring about any control on the current that you would have initially. So our big problem in designing this was to design it safe. And we took the approach of a single transformer and tube arrangement without any capacities.

Now, you can do that where you need low currents. You can't do it very well where you need high voltages at reasonably high currents. There they take the approach that they incorporate into the unit—at least in the initial approaches with such equipment—transformers, condensers, electrical condensers as well as tubes—the condensers being put in intentionally to give you a ripple-free characteristic are put in there to carry you, so to speak, over the situation when you are not providing energy for the output. And such units, of course, are extremely hazardous. As a matter of fact, when Harold Ransburg first came to us at the University with his problems and one thing and another we did not have available at the University a pack which we felt was safe for his particular operation, because we were mainly interested in the X-ray type of equipment.

Q. Comment on whether or not this pack is safe or is not safe.

A. I can say that if this pack is not safe I personally would have been dead about 50 times because I have contacted it that many times myself. It is annoying but not lethal in any sense.

Q. Tell me whether or not the Ransburg Company are still marketing the No. 1 System?

A. Yes, they are, sir.

Q. Well, tell me how the System illustrated in Exhibit

7 compares with the present day System marketed by the Ransburg Company as the No. 1 System?

A. This illustration would essentially serve to illustrate a present piece of equipment that we would market.

Q. And how does the power pack in Exhibit 7 compare with the power pack of the present day No. 1 System of Ransburg?

A. This would be an adequate power pack for that type operation. It so happens that we have done further design and development and we now have another type of pack which we would generally use.

Q. Is the one you now use safe or unsafe?

A. I beg pardon?

Q. Is the one you now use safe or unsafe?

A. It is definitely safe.

* * * * *

Q. Does any overspray occur in the use of the system illustrated in Exhibit 7?

A. Yes, sir.

Q. Well, tell us about that and its extent, please.

A. The extent and amount of overspray which you'd experience with such a system obviously comes about due to the fact that the material is introduced into the field with a certain pneumatic or mechanical impulse. Each little particle is traveling with a definite velocity being urged on by the air stream in which it finds itself. Once in the field the particle becomes charged and is then urged toward the object on the conveyor. Now, if the urge of the electric field is not sufficiently large that it gets the particle over onto the object before its initial mechanical momentum carries it to the back of the field, obviously that particle is going to keep right on going into the exhaust curtain, and that would be the particles that exist as overspray.

Q. And to what extent from the standpoint of the efficiency and the use of paint does that occur?

A. With regards to, generally with regards to an operation of this type, you might have 20 to 25, 30% over-spray, depending upon the object being sprayed and the necessary mechanical momentum you have to give to the particle to get it broken up.

Q. What is the requirement in using a No. 1 system such as the, that illustrated in Exhibit 7 with respect to means for handling and eliminating over-spray from the standpoint of the atmosphere?

A. Well, the requirement is that you obviously have to have some sort of a trapping or catching device for that overspray. If you don't, it goes out into the air and contaminates the neighborhood or it may contaminate your own plant on the inside or generally would be troublesome and annoying; people working around would inhale it. Of course, that is not good; it is not allowed by law, so you have to incorporate in such devices, even though the percentage has been greatly reduced over ordinary spraying operation, you are required by law to provide such places with ventilation and a recovery system that will take the form of dry type booths as shown here or you have just simply a mechanical square plate set up in the plenum chamber, so the air in getting there has to go around them and contact them so in a sense you scrub out some of the particles in the air stream. You could just as well have a water curtain here which would provide a means of scrubbing or washing the air. Obviously the need for such a thing depends upon the magnitude of the operation. If you are only going to operate for two minutes, you can get by with much less adequate recovery system than if you operate for 24 hours out of the day.

Q. Now, can you tell us whether or not any steps were taken by Ransburg to further eliminate over-spray in spray painting methods?

A. Yes, there were, sir.

Q. Would you take your seat, please?

A. (Witness resumes the witness stand.)

Q. What was the next step that you know of that was taken in that direction?

A. The next step that was taken in the direction of eliminating over-spray was to try to devise or get somebody else to devise an air gun which would effectively or more effectively break up this coating material at a lower air pressure, one of the difficulties being here and one of the reasons here for inefficiency is the fact this material, by being broken by an air stream, is actually blown through the electrode system, its velocity gets too large and because of that the paint is lost, and so it was our desire to [illegible] to get—attack the problem first by trying to get guns designed which were better atomizers, so to speak, which would atomize at lower pressures.

(The defendant, for purposes of identification, handed the Reporter certain documents for marking, and which were by said Reporter marked Defendant's Exhibits Nos. 8-A and 8-B.)

Mr. Hume: I will state for the record these two drawings correspond to the drawings of the Starkey Patent in suit '536, 8-A showing Figures 1 to 6 inclusive and 8-B showing Figures 7 to 9 inclusive and their purpose here is to have these exhibits in the record in the same colored form as the larger charts to which I will direct the witness' attention.

The Court: Any objection?

Mr. Meroni: I don't believe there was an offer, your Honor.

Mr. Hume: I will offer those at this time.

(Defendant's Exhibits 8-A and 8-B offered in evidence by Mr. Hume.)

Mr. Meroni: Object to them as being redundant. The patent has been received in evidence and these are merely duplicates of the patent drawings.

The Court: The only difference is the coloring there to correspond with the same system of coloring that is used in Exhibit 7, as I understand.

Mr. Meroni: Yes, your Honor, which at this stage is meaningless.

The Court: I will overrule the objection. We don't have a jury here and I understand the duplication will not be harmful.

(DEFENDANT'S EXHIBITS 8-A and 8-B are admitted and read into the evidence and made part of the record in this case, said exhibits being in the words and figures following, to-wit:)

Q. Before we go further, may I ask, do you have an understanding as to what the coloring on this Exhibit 8-A is?

A. The coloring on the exhibit corresponds essentially to the same coloring which was on the original drawing, the yellow being again the paint or fluid lines, red being the atomizing device or atomize head, the green being the voltage pack, the blue being the object to be painted, and the orange being the conveyor to support the article.

Q. Now, will you proceed with your description as to how the device operates?

A. In operation this device is essentially positioned at a reasonable spacing away from the object on the conveyor. The object is in metallic contact with the conveyor and the conveyor is grounded. The atomizing device here represented in red at 13 is connected by a suitable electrical conductor to a voltage pack, 20 (referring to chart),

the other side of which is grounded at 21. Under the—pardon me just a moment—the coating material is introduced from a suitable supply or container by way of a hose to the atomizing head and in Fig. 2 a cross-section of that atomizing head or device is shown again in red as being a triangular cross section. The hose, 19, introduces the coating material at the rear, fills up the cavity, and the coating material oozes out of the openings on the front or sharpened edge of that device and under the action of the electrostatic field which exists between the atomizer and the object by virtue of the atomizer being charged and the object being grounded, this coated material breaks up in a fine spray and separates and disperses, and eventually is precipitated on the article being coated.

Q. Would you describe the construction shown in Figures 3 and 4, please?

A. This is another modification of the same device in which the coating material is again introduced in the yellow line to the inside of the container, except that here (referring to chart) as shown in Fig. 4 each of the openings in the front or exposed edge of the head has associated with it what might be termed a regulating valve. It is essentially a tapered conical shaped member which fits into the orifice and thus controls the size of the orifice and thus controls the amount of coating material that can flow out of the orifice to the atomizing point.

Q. Now, will you describe the illustrations in Figures 5 and 6 of Exhibit 8-A?

A. Figures 5 and 6 represent still a further modification which could be used to regulate or control the flow of coating material from the inside to the outside point of atomization. In this particular modification, shown in 5 and 6, there are a series of cylindrical parts compacted between side walls, 214 and 216, and separated by a suitable central separator. The action of compacting these

cylindrical members into that head obviously leaves small openings or channels down along the length of the members between each of them and through that orifice, or opening, that the coating material will pass in order to arrive at the outside surface of the extended portion of the head and essentially carry it, then, from there to the atomizing location at the end of those openings.

Q. Now, when the device of Exhibit A is in use, is there an electrostatic field in existence?

A. Could I ask for that question again?

The Court: Read the question.

(The last question was read by the Reporter.)

A. Yes; there is an electrostatic field existing between the atomizing device and the object on the conveyor. That spacing between the two being such as to represent an area or space which is under electrical potential difference so you have an electro field.

Q. Are there any lines of force in that field?

A. I would like to point out that you ask are there any lines of force in that field. Actually the concept of lines of force is a tool that is talked about in the electric business for the description of electrical forces that exist there and in this sense there are lines of force that exist in that field.

Q. And these forces which are defined by the lines of force that you have indicated extend from where to where?

A. They would originate on the one electrode and terminate on the other, originating, generally speaking, being most concentrated at the point of closest proximity to the other object and ending on the other object in density which is in conformity to the shape of that object.

Q. What effect does the electrode, and we will refer to the electrode at the atomizing head and of the field, have on shaping the field at that point?

A. Well, the shape of this electrode at the origin and,

as we would refer to it here, has everything to do with the shape of the field at that point. If this is a cylindrical or spherical surface then the lines of force would be distributed over the front side of this sphere. If a sharp and triangular portion, as shown in Figure 2 exists then the lines of force will originate at the sharp end, front edge of that device and will move out toward the object repelling one another, but also having to end up on the object.

Q. And what is the effect on the shape of the field, if any, of the electrode supplied by the article being painted?

A. Well, at that end of the field, the shape of the electrostatic field or the distribution of the lines of force, which essentially is the shape, will be determined by the object again. I mean the shape of the object.

Q. Now, is there atomization of paint occurring in the use of the system of Exhibit 8-A such, for instance, as in Figures 1 and 2?

A. Yes, paint atomizes and that atomization is indicated by these tufts or brushes that takes place here. That paint would atomize and would disperse and would appear as coating on the article being coated.

Q. What causes the atomization?

A. The atomization is caused essentially by the attraction which exists between the liquid at the front edge of the atomizer and the article on the conveyor.

Q. Well, what force causes it?

A. Electrical forces. Those forces are electrical in nature by virtue of the fact that basically the head itself is attracted toward the object but since it can't move, particles of paint on the front edge, which are free to move obviously will move and be broken and transported across here.

Q. Does the electrostatic field have anything to do with the atomization?

A. It has everything to do with the atomization.

Q. Now, is there any dispersion or conveyance of atomized particles in the system illustrated in Figures 1 and 2 of Exhibit 8-A?

A. Yes, it is a characteristic of lines of force and also of particles once charged that they are charged with the same sign and they will tend to try to get away from one another, and immediately upon being formed they will try to disperse. They will follow the same characteristics as the lines of force. They will spread out and will, so to speak, run down that electrical hill which is represented by electrical lines of force and eventually end up on the surface of the article as a dispersed individual droplet which will have to be supplemented by another one immediately in back and eventually enough of the drop is accumulated to give you a coating over the entire surface.

Q. Is there any deposition of the paint in this system illustrated in Figures 1 and 2 of Exhibit 8-A?

A. Yes, certainly. The paint which leaves here is deposited on the article being coated or the conveyor, which is likewise and here as you will note is the other end of the hill, the electrical end of the hill (indicating) and the particles will run down and collect on the conveyor. The desirable thing is to have them all end on the object if at all possible.

Q. Does the electrostatic field have anything to do with the dispersion and conveyance?

A. Yes, it has everything to do with the dispersion and conveyance.

Q. And does it have anything to do with the deposition?

A. It is responsible for the deposition. As a matter of fact, so much so if particles get started on a line of force which, due to the shape of the object happens to

come out into space, you might say, and go around here (indicating) that line of force has to end up on the object some place and that may be even on the back side so the particle will come around here and sit down on the back side, actually opposite the article, in order to find its location.

Q. I direct your attention to Exhibit 8-B and ask you if that is familiar to you?

A. Yes, sir, this is a representation of the second page of drawings from the Starkey and Ransburg patent.

Q. Do you understand how that works?

A. I do, sir.

Q. Will you describe that to the Court, please, and tell us what the color is first?

A. The coloring again corresponds to the color that appears on the other chart, yellow being the fluid supply line, red the atomizing head, blue the object being painted and orange, the conveyor itself, and green, in Figure 9, the voltage supply.

Q. Well, now, will you direct your attention to Figure 9 and tell us what is shown there, please?

A. Figure 9 is a schematic representation of the overall operation of all of these devices in which you have a grounded point, 321 in the voltage supply, a transformer secondary represented by the coil, a voltage rectifying, two-element tube represented in the circle and that is connected to any one of these atomizing devices shown here as 313, and positioned opposite an article, 310 on conveyor, 311, which is grounded at 312.

Now, coating material here is introduced to the inside of 313, flows through any one of these orifices which have been described, and appears at the front sharpened edge of 317 and is broken up, dispersed and atomized off of that edge as shown here by the yellow dispersed spray, to the best of the artist's ability, I presume, and is carried by the

field which exists between the head and the article across that space and sets down on the article, 310.

Q. Would you give us a detailed description of the construction of the head shown in Figures 7 and 8?

A. Figure 7 essentially shows an over-all view of a device which is similar to the other devices and was arranged to feed the coating material at controlled rate to the front exposed edge of the head and in this arrangement you have attached to the end of the supply line a device which in cross section looks like Figure 8. You have a pipe which extends the length of the head.

In that pipe, and you are going to introduce coating material into the inside of that pipe, in that pipe there is an opening or a series of openings along the bottom surface and that coating material runs out of that opening onto a sheet which lays down along the back side and is attached to the pipe at the top and ends at the bottom in its front sharpened edge, you might say. There are ends in this device which keeps the coating material confined within its length and about the pipe and the sheet there is wrapped a fine wire wrapping. Actually this is done in order to get a series of uniform spacings between the wires, by wrapping two wires on the edge and taking another out and you get a series of nicely spaced openings along this bottom, and through those openings, the coating material oozes or runs and appears at the outer sharpened edge in the position and condition to get satisfactory atomization.

Q. Now, directing your attention to the various figures of the drawings of the patent, is there any difference in principle in the operation of the various modifications shown there?

A. No, they are all operated on the same principle, namely some method of feeding through the atomized head a controlled rate of flow of liquid which then passes out to an exposed front edge of the atomizing head, which head

is positioned opposite the object charged to a high potential so you get the possibility of this electrostatic field bringing up the material and moving it across the space onto the object to be coated.

Q. Now, what kind of a flow is used in supplying the paint to the head in these forms of the Starkey invention shown in Exhibits 8-A and B?

A. The flow in this particular case is caused by the gravitational head through this tube to the atomizing head and in the other cases it is anticipated that that flow will be supplied either by gravity or air pressure or some other method.

In Figure 3 the flow, although brought to the head by air pressure or gravity, the flow through the head is actually controlled by the valve, a little valve shown in Figure 4, and this other device, the valve mechanism in the line, is intended to control the over-all flow of paint to the head which is then distributed to the head by virtue of the opening in this central pipe.

Q. Is the flow controlled or uncontrolled?

A. Definitely controlled. It is controlled by virtue of the fact in this case, in order to control it at a desirable level, at this tank the supply is broken up into three heads so this section of the head will not have more flow to it than the top one by virtue of the difference in hydrostatic level—

The Court: The witness is referring to Exhibit 8-A now.

Q. And Figure 1 of that Exhibit 8-A?

A. That is correct.

Q. Now in what form is the paint presented to the electrostatic field at the atomizing head?

A. It is in the form of a liquid which, I might say, in terms of this device is considered to be inert. It is not driven by any other forces except those which are required to present it at that particular location.

Q. Now, does the paint itself in the systems disclosed in Exhibits 8-A and B function in any capacity as an electrode itself?

A. Yes, the paint obviously is at a potential identical to the electrode system and, as I mentioned awhile ago, is under that same attraction or pulling force due to the electrical field. Obviously under those circumstances that droplet or small body of inert liquid will be drawn out into a papered cone or cusp and off the end of that little cone cusp or projection obviously the coating material will come. I mean it is the logical way to get paint from bulk into small particles by drawing it out into fine fiber and that is created here by the electrical field.

Q. Is that drawn or illustrated in Figure 7 of Exhibit 8B?

A. Yes, these lines were the artist's conception to illustrate the conical shape at the bottom of the head which ends up in the extension which then becomes the source of the atomized particles.

Q. And from what part does the actual atomization occur with respect to these streamers you are speaking of?

A. These streamers,—the atomization will obviously have to occur off the end since you have a transition from solid continuous liquid to a spherical or otherwise disposed small particle. You will have to have that transition existing, and the small particles come off the end of that extension or filament.

Q. Now, these areas from which atomization occurs, are they spaced on the head?

A. Yes, they are spaced along the head uniformly, generally depending on the device, the characteristics of the device as far as openings are concerned, and also depending upon the electrostatic field.

Q. What is the relationship; what is the character of the spacing?

A. The character of the spacing generally will be uniform across the head and you will go out of one cusp or pyramid into the next in a curve that represents a liquid surface like you might see it in a spinning glass or something like that. So you go in a series of loops, so to speak, from one point to the next along the head.

Q. What is the magnitude of the spacing?

A The magnitude of the spacing will depend upon the voltage and on the spacing of the openings in the head.

Q. What is shown here as the magnitude of the spacing?

A. The magnitude of the spacing here would probably be of the order of an eighth of an inch between those two positions, between two adjacent positions.

Q. Is it significant in the system to have the points, locations of the atomization, in relationship to each other insofar as it bears on the electrical field?

A. Yes, it is significant to have those close otherwise—you have to have to get a nice uniform painting operation. You will have to have those points sufficiently close so that at the electrical field they tend to lose their identity. In other words, if you had a series of points like my fingers positioned at some point like this which would be separated from the points to my hand a distance of only an inch or so, then the points would look like they were individual. But if you separate them that distance then the points look like they are one continuous—

The Court: The distance referred to by the witness indicates about a foot?

The Witness: In normal practice that distance would be about a foot, yes.

The Court: All right.

Q. Would it be proper to call the edge of the atomizing head as an atomizing zone?

A. That would be a correct reference. I would say that

represents a region or zone or a location where atomization takes place.

Q. And what is the relative disposition of that zone to the electrostatic field?

A. That zone generally would lie along the atomized—the front-most extended edge of the atomizing device, and would extend out from that head to and including the ends of these streamers that come off the head.

Q. Directing your attention to Figures 5 and 6 of Exhibit 8A, what is the fact as to the form of the liquid at the atomizing zone?

A. In this arrangement the form of the liquid at the atomizing zone gives you a streamer which comes out from between the two extensions and extends out away from the front edge 217 of the atomizing head a distance corresponding to what I have mentioned,—the atomizing zone extending from that point to the end of the streamers which are thus formed.

Q. Well what would be the relative spacing of the streamers with respect to Figures 5 and 6 of Exhibit 8A?

A. In this they would be spaced identical to the spacing which exists between the elements 215.

Q. What kind of a spacing is that with respect to the overall electrode?

A. In this device that spacing would be of the order of three-sixteenths of an inch as compared with a spacing of the atomizing device from the object of six, eight, ten inches.

Q. How is that with respect to this action I think you referred to as the opposite electrode looking at it?

A. That is sufficient so that particles emanating from one such point will have an opportunity to disperse and merge with the similar articles coming from another point, and so there will be precipitated on the object a reasonably dispersed image, so to speak.

Q. Just to clear up the record, did you say "articles" or "particles" in your last answer?

The Court: Will you read the answer?

(The Reporter read the following answer: "That is sufficient so that particles emanating from one such point will have an opportunity to disperse and merge with the similar articles coming from another point, and so there will be precipitated on the object a reasonably dispersed image, so to speak.")

The Witness: The second word that you have transcribed as "articles" should have been "particles".

* * * * *

Q. Dr. Miller, I would like you to compare, please, the location of the atomizing zone as it appears in the Starkey Patent in suit as represented by Exhibit 8-A and Exhibit 8-B respectively and the location of the atomizing zone in the No. 1 process which you have stated is illustrated in Exhibit 7.

A. The atomizing zone in the Starkey and Ransburg Patents as indicated in Fig. 1 embodies the region throughout the entire extent of the head and the front of the head.

Q. What is its relationship to the electrostatic field?

A. It is at the same point as the electrostatic field originates on the atomizing head itself. It is coincident with that particular point.

Q. How does that compare with the location of the atomizing zone or region in the No. 1 System?

A. In the No. 1 System the atomization or atomizing zone is located immediately in front of the spray guns and spaced outwardly from the electrostatic field to the position of those guns, and normally that is approximately 18 inches.

The Court: The witness is referring to Exhibit 7 as to the No. 1 System.

Q. (By Mr. Hume.) Now, with respect to the operation of the Starkey Patent System, is any air involved in the atomization activity?

A. No, sir.

Q. And how does this compare to the No. 1 System?

A. The No. 1 System, the air produces the atomization.

Q. What produces the atomization in the Starkey System?

A. The electrostatic field.

Q. Now, what is the relationship between the, if any, between the particles that are created in the atomizing zone of the Starkey Patent and the atomizing field insofar as the forces are represented by lines of force are concerned?

A. Well, the particles which are, as I mentioned, are created at the origin point of the electrostatic field of course are created, you might say, at the origin of that field; in other words, they will simultaneously come into existence at the point where the electrostatic field starts and that field extends as a single electrostatic field, then, to the object.

The Court: The witness is now indicating on Exhibit 8-A.

Q. (By Mr. Hume.) Does the fact that the particles are created at the location that you have described have any effect on the subsequent activity in dispersing and depositing?

A. Yes. The fact they are created at the point of origin in the field, first of all, accounts for the fact they are charged and, secondly, accounts for the fact they will then be, so to speak, placed on a line of force, and as the result of the existence of that line of force, will follow it as it extends from that point of atomization to the object and terminates on the object.

Q. You said "placed on the line of force." Will you explain that?

A. I mean they arrive, they are atomized, perhaps I should say, by the actual existence of that force and will follow its direction, and in that sense I meant that they would be in that line of force, so to speak, or at that the-

oretical track that extends from a point of atomization to the point of object.

Q. Now, in the Starkey Patented system, how many electrostatic fields are involved?

A. There is only one electrostatic field involved; namely, that one which extends from the site of atomization to the object, itself.

Q. And is that the field that you said does the atomizing?

A. That is the field which does the atomizing, the dispersion, and the deposition. The single field accomplishes all those purposes.

Q. Now, when an object to be painted is caused to move past the atomizing head, as on a conveyor of some sort, what effect, if any, does the shape of the article have on the shaping of the electrostatic field at the article end of the field?

A. As shown in the Fig. 1 of Exhibit 8-A the field will extend from the atomizing head or atomizing zone to the object on the conveyor. The shape of the field is determined by the shape of the atomizing zone or the head, and the shape of the object. Now, as the—as one object moves in to replace another, that field shifts from one object to the other, and if they happen to be of the same or different shapes, why the field will modify its shape at that end, at the end of the object to conform to the shape of the object. You might visualize it as, so to speak, "snapping." It stays with one object and then snaps to the next one to take up the shape of the succeeding object as it comes along on the conveyor.

Q. Now, suppose an article was placed on the conveyor and moved into the position opposite the head electrode which had the shape of a letter "H" of the alphabet, for instance, and I am assuming an object which would be of small enough size to fit within the influence of the forces

of the field. What would be the shape of the field at the article end of the field?

A. The shape of the field at the article end under those circumstances would be essentially the shape of the figure "H".

Q. And how would the lines of force adjust themselves at the article end? How would they terminate on the article?

A. They would—Generally thinking, in the letter "H" you might visualize they would terminate reasonably uniformly over the surface, the flat surface over the letter "H" which was presented to the atomizing head, and at the corners or sharp edges they would extend to concentrate and possibly spill around onto the side surfaces slightly.

Q. Is there any word for that expression "spill around" that you mentioned?

A. The field wraps around, so to speak, to the side surfaces and the top surface and the bottom surface.

Q. Is that "spilling around" related to "over-spray"? Are you telling us that is over-spray?

A. No, no. The spilling around of the field is the electrical diminution of the field as it extends to those side surfaces and, actually, in the case of the Starkey-Ransburg Patent, where you have the single field extending from the site of atomization to the object, the particles will accumulate on those side surfaces as dictated by those lapped-over lines of force, you might say.

Q. How far around the article; for instance, you have got a round tubular article, how far around does this wrap-around extend its influence?

A. It will fall off as the distance around the surface increases, and there is a physical rule which governs that: it falls in inverse proportion to the square of the distance away.

Q. Now, considering the end of the field at the location of the head, where the atomizing zone occurs, what is the

effect, if any, of the shaping of the field at that end by the electrode?

A. Well, the field at the end of the atomizing head is shaped entirely again by the shape of that particular electrode. If that is long and extended and thin, the field will be long, extended and thin and will take up the shape of the electrode.

* * * * * *

Q. What is the consequence, if any, of this difference that you have referred to in the economies of the No. 1 and the No. 2 Systems, the latter being represented by the Starkey patent in suit?

A. The consequences are that in the case of the Starkey Ransburg patent, essentially all of the particles which leave the atomizing zone end up as coating material on the object because there are no other disturbing forces, whereas in the No. 1 process the disturbing forces, the existence of the air and the atomizing forces, do not allow all the particles to be accumulated so they are lost.

Q. Expressed in terms of percentages, the paint that is sprayed, what percentage would you say is saved by using the process and apparatus patents in suit compared to the No. 1?

Mr. Meroni: I object to the question as being indefinite unless tied down to particular paints and coatings because it varies all over the lot. I think the question is indefinite.

Mr. Hume: I will modify it to confine to the experience of this witness.

Mr. Meroni: It is also general and not confined to any particular structure.

Mr. Hume: The experience of this witness to the extent that the No. 2 Systems have been practiced by the Defendant Ransburg.

A. The deposition efficiency in the case of the No. 2 processes will be of the order of 98 to 100 per cent. I

mean that 98 to 100 per cent of the material which leaves the atomizing zone will actually be precipitated on the opposite electrode or grounded object. In the case of the No. 2, or the No. 1 process, as illustrated here in Exhibit 7, that efficiency for a comparable object such as is shown in the can-shaped object would be in the order of possibly 70 per cent. That is 70 per cent of the material which leaves the origin source will actually end up as useful coating material on that can.

* * * * * *

Q. Will you explain to the Court the construction of the plaintiff's painting system, using the emitter of the plaintiff and tell us how it works?

A. That device is constructed of two brass discs.

The Court: I might suggest you—that the Witness, the Court observes, is also reading from Exhibit 13A and 13B. You have only handed him Exhibit 12 for this question.

Q. I will also hand you Exhibit 13A and 13B, if that will assist you in your description of the operation.

A. The device is constructed of two brass discs, which are essentially flat on one side and on the opposite side are tapered to a sharpened edge. Those two discs are placed flat side to flat side and are held together by a central cylindrical type construction which is essentially a stud and cap screw or cap arrangement, which is intended to hold the two flat surfaces of these members in intimate contact with one another.

Now on the flat side of the disc, you have near the center of each disc a recessed portion which, when the two discs are brought together, form a cavity which is essentially washer-shaped in cross section.

Q. Have you prepared any drawings that illustrate the construction you have described?

A. Yes, I have, sir.

Q. I direct your attention to Exhibits 11A and 11B and ask you if those are the drawings?

A. These are drawings which I had prepared to illustrate this construction.

Q. Now will you continue with your description, and if you can be assisted in your description by referring to these drawings, I suggest you point to the object that you want to bring up.

A. In 11B, or Figure 1 of 11B, the two discs which are mentioned are shown in Figure 1 in red, with the bolt that passes through the center to hold them together. The central recessed portion here is shown in yellow on that figure, and as will be seen from this figure, there is placed between the two discs a black spacer type element which is so arranged that it does not completely conform to the disc shape of the object but is essentially a disc from which a quadrant has been taken off. Perhaps I should say a segment instead of a quadrant. A segment has been removed and attached to the disc. At the one end of this bolt structure which comes through the center is a tube shown here in yellow, which tube is to support the object and to also introduce coating material to these small drilled channel openings which brings the coating material from the tube to the recessed portion of the construction when the two discs are held together against the spacer.

There is in the tube a needle valve which is there for the purpose of controlling, turning off and on, or regulating the flow of the coating material from the tube to the recessed portion and then from the recessed portion out of the cut-away segment of the spacer, through the space between the two discs to the outer sharpened edge.

This device is then mounted opposite an article to be coated. The article to be coated is grounded.

The Court: He is now referring to Exhibit 11A.

A. (Continuing.) And the other side, one side of the

high voltage supply is connected to the atomizing device, as shown in this drawing at the point of the tube support, and the other side of the power supply is necessarily grounded to complete the electrical circuit and establish the field between the atomizing device and the object.

Q. Now I am reading from the stipulation entered into between the parties dated November 7, 1958 with respect to the operation of the plaintiff's system, and it says:

"As indicated in the drawing, Exhibit 28-C, the emitter structure is connected to a power supply which • • •"— first of all, do you find that power supply?

A. That is shown in green on Exhibit 11-A.

Q. "• • • which applies a potential in the range from about 25,000 to 110,000 volts."

Do you find that?

A. That would be considered a high voltage, as indicated on this as being supplied to the head by that high voltage line.

Q. Then it says: "The emitter is spaced from an object to be coated."

Do you find that?

A. The object in this drawing is called "article being coated" and it is shown in blue.

Q. Then it says: "• • • which is at ground potential."

A. There is shown on Exhibit 11-A a ground connection to the article.

Q. It says: "The spacing between the emitter and the article has ranged from about 10 inches to 3 feet."

Is that represented there accurately?

A. The space is represented and it is approximately the right order of magnitude as compared with the other devices and spacing shown in the figure.

Q. "As the liquid coating material is delivered to the sharp circular edges of the disc, the high voltage gradient

present forms the liquid material into discharge streamers."

Do you find that?

A. On this drawing 11-A those are referred to as "atomized spray of liquid coating material," and they are shown as lines existing between the atomizing head and the object; and on Exhibit 11-B they are actually referred to as "discharge streamers"—Figure 2 on 11-B.

Q. Point to the discharge streamers.

A. (Witness complied with request of counsel.)

That is on 11-B as the black portions which extend out from the red portion indicated as a disc in the upper figure of Figure 2 of 11-B.

Q. Now, these two figures on the right-hand side of 11-B are enclosed in a circle. Would you explain that to the Court, and let the record show how that should be read and looked at? What is that circle?

A. That circle is what would be an enlarged view of the condition which exists at the atomizing edge. The red portion which is curved at its right-hand side is actually an enlarged portion of the atomizing edge of the slotted disc emitter; and when looking at an enlarged view of such a small section of the emitter you would see these streamers extending out,—discharge streamers, as referred to here, extending out from that edge into the space beyond.

Now, actually this drawing would be somewhat confusing in that regard because when you were looking at the enlarged portion of the emitting edge you probably would not be able to simultaneously see the stuff which extends out of that region of bird's-eye view, so to speak, but you would have—

Q. (Interposing.) Is the circular ring a frame of visible area there like a magnifying glass?

A. That would be my interpretation of this drawing, yes. If you look at the discharge edge of the emitter with

a magnifying glass you would see that region immediately adjacent to the edge, and then the ring is shown dotted here and it's shown emitted in the lower portion, and I presume that that means you no longer visualize that as being a restricted area but now you can extend that out to what you could see outside and away from that area.

Q. How far do the streamers extend in the showing of Exhibit 11-B?

A. Do you want numerical—

Q. (Interposing.) Not in dimensions, but tell us what the characterization on the drawing is that represents streamers and what the characterization is where they terminate and when something else happens.

A. Well, the streamer itself actually is represented on this as being the full darkened portion which extends out beyond the circle of view, as I will call it here, and at that point that streamer breaks up into a fine spray which is referred to in the drawing as "atomized charged particles," which are then discrete particles in the space or portion.

Q. Represented by what in the drawing?

A. They are small black dots, or they look—I guess that is as close as we will have to describe them.

Q. Now, look at the black lines that extend from the atomizing head or emitter here at the article being coated in Exhibit 11-A. They are lines all the way. What does that represent with respect to streamers or atomized particles?

A. This would be an integrated path of the atomized particle on its way from the head to the object.

Q. Well, has there been any effort to show in Exhibit 11-A atomized particles by dots such as shown in Exhibit 11-B?

A. No, there has not been. The two dotted lines which appear here are extensions of the zone of atomization which

extend around the head over onto the surface of the object. Actually they are straight lines, although you get an optical illusion here that makes them look curved.

Q. Referring again to the stipulation of November 7, 1958, it says: "The emitter takes the form of two sharp edged discs."

Do you find those?

A. Yes, those would be the larger red members in Figure 1 of Exhibit 11-B.

Q. And where are they in Exhibit 11-A?

A. In 11-A you are looking at a side view of such a disc and so it takes a disc shape.

Q. And what color are they in the drawing?

A. That is red in 11-A also.

Q. It says: "They are located on a generally cylindrical inlet body."

A. That generally cylindrical inlet body is designated in Figure 11-B as being a "liquid inlet body" which is shown as a bolt-type structure with a cap nut.

Q. It says: "A single cap nut threaded onto one end of the inlet body allows quick and easy disassembly of the two sharp edged discs."

Where do you find that?

A. That is so designated as a "cap nut" on Figure 11-B.

Q. The stipulation says: "Liquid coating material is fed into the inlet body through an inlet tube."

Do you find that?

A. Yes, it is designated here as an "liquid inlet tube," and it is shown in yellow in Figure 11-B—Exhibit 11-B. Pardon me.

Q. The stipulation says: "The amount of flow being controlled by a valve located in the tube."

Do you find that?

A. That valve is designated as a "needle valve" and is also yellow on Exhibit 11-B.

Q. Then it says: "Material issuing through the valve is directed to the space between the two discs by an angularly disposed passageway in the inlet body."

A. There is such an angularly disposed passageway indicated in the liquid inlet body in Figure 1 of Exhibit 11-B, and that leads from the liquid inlet tube to the space between the two disc members.

Q. It continues: "The liquid coating material thereupon flows radially outward under a slight positive pressure to the outer, sharp edges of the discs from which it is atomized."

Do you find that?

A. That would be indicated by the yellow coating which surrounds the black spacer; and at the top of Figure 1 of Exhibit 11-B that spacer does not exist, but allows free passage to the outside sharpened edge.

Q. How many electrostatic fields are employed here?

A. There is one electrostatic field employed. That, namely—referring to Exhibit 11-A—that which exists between the atomizing device and the object.

Q. What force in the plaintiff's system is represented in Exhibits 11-A and 11-B and in the stipulation that causes the atomization of the coating material?

A. The electrical forces of the single field which exist between the atomizer and the object being coated.

Q. Is there dispersion or conveyance of the particles in this plaintiff's system?

A. That dispersion and conveyance of the particles from the atomizing head shown on Exhibit 11-A to the article takes place and is due to the existence of the single field between those two objects.

Q. Is there deposition in the plaintiff's system of the paint particles?

A. There is deposition of the paint particles on the object due to the action of this single field.

Q. Is there an atomizing zone in the plaintiff's system?

A. Yes, there is an atomizing zone.

Q. Where is it?

A. It exists along and adjacent to the atomizing head edge. Actually it would be specifically located at the end of the discharge streamers which are shown in Figure 2 of Exhibit 11-B.

Q. Now, if objects of different shape should be moved past the emitter head of the plaintiff's system, what would occur with respect to the influence of the article on the electrostatic field in so far as the shape and size of the field are concerned?

A. The shape of the field at the article end of the field would be determined by the article, just as the shape of the atomizing head determines the shape of the field at the other end of the field or at the atomizing head end of the field. And as various shaped articles would be moved by this device in turn their shape would in turn determine the shape of the field at that end of the field.

Q. Now, with respect to the forces on the atomizing head, that is, forces of electrostatic field; where in relationship to the point of emergence of those forces from the head does the atomization occur in the plaintiff's system?

A. In a device of this type the coating material actually would be drawn up in the discharged streamers, and since they are essentially a part of the atomizing device, they become the end of the device as far as that end of the field is concerned, and the electrostatic field originates there and extends from there to the article being coated as a single field.

Q. Now, when the plaintiff's device is being utilized and as represented in Exhibit 11-B, where the streamers marked "Discharged Streamers" are shown to exist, what

actually constitutes the electrode at the discharge head end of the field?

A. Actually, the streamers themselves constitute the end of the electrode, the electrode itself. They become an integral part of the discharge head, of course, and electrically they are integral with it, so they become the outermost portion or origin part of the field.

Q. What is it they become, the electrode, and actually in that sense replace the head? What do you mean?

A. They have electrical conductivity which as they are drawn out into space, they actually extend the physical shape of the electrically conductant disk by virtue of their own electrical conductivity and in a sense enlarge the disk to the extent of their length, and since they form the outermost portion of that disk, the portion which is closest to the object, they will be the end of the field at that point.

Q. The fact they are the end, does that have any significance in action as an electrode?

A. Yes, because they are the end that is the origin or the site of the origin of the force, you might say, and a particle formed at that point under the, you might say at the origin point of the field, will be charged and will be automatically under the control of that field and will follow its line to the object.

Mr. Hume: Your Honor, I offer in evidence Defendant's Exhibits 11-A and 11-B respectively.

(Defendant's Exhibits 11-A and 11-B reoffered in evidence by Mr. Hume.)

Mr. Meroni: (For Plaintiff.) For what purpose?

Mr. Hume: For showing the illustrated description of this witness of the plaintiff's operation.

Mr. Beroni: I have no objection to their being offered as being illustrative of this witness' testimony.

The Court: EXHIBITS 11-A and 11-B are admitted and read in evidence.

• • • • •

Q. I will show you Exhibit 16 and call your attention to the first column on Page 3 there and ask you is there any disclosure of voltage in that patent? If you find any reference, will you read it to the Court, please?

A. Yes, there occurring on Page 3, Column 1, Line 28 says "Preferably the generating apparatus is adapted to supply direct current with the voltage of the order of 100,000 volts."

Q. What is the characteristic voltage used in the No. 2 Systems?

A. It would be between seventy-five and one hundred thousand volts, generally speaking.

Q. In the stipulation we had the term "voltage gradient". Can you explain what voltage gradient means?

A. Voltage gradient basically and mathematically is defined as the rate of change of the electrostatic field intensity. In terms of what we are talking about here, and in terms of describing that, by the use of lines of force, it might be visualized in this manner: That the intensity of an electrostatic field would be measured by the number of lines of force which would pass through any unit cross sectional area which was drawn out between the two objects had the field existed between them, and you might say if you had two lines of force per square inch that would be a certain field strength. If you had ten lines of force per square inch that would be a field strength of five times as large; now, if you went from a situation where you had a field strength of ten lines per square inch to a situation where you had a field strength of two lines per square inch, there would be a change in the field or the field would have a gradient in which case, if those two positions were separated by one inch in space, then the gradient would obviously be the field at the one point ten lines per square inch minus the field at the other point, two lines per square inch or the difference would be the eight lines and the

gradient therefore would be eight lines per square inch per inch, and so the field of strength is defined in that way in terms of the lines of force. Actually it has the units of volts per centimeter.

Q. Now, does the concept of voltage gradient involve anything to do with the spacing of the electrostatic head and the article in considering the electrostatic fields in systems of this type such as in the No. 2 System?

A. Yes, that is correct. It does have considerable to do with it in this regard, that a field established between two objects you might say has a line of force for every unit electrical charge which is maintained on the one object with respect to the other and since there is, you might say, a line of force for every individual charge, that is by definition, then a line of force has to leave the object and has to end up on the surface or on an opposite surface which is of a different potential.

Obviously, with a shape such as shown in Figure 11A, the lines of force originating on the atomizing head, or the emitter, originate over a reasonably small area and by their very nature diverge or repel one another and end up on a much larger area of the object. Therefore, the lines of force are going to be much more condensed or compacted at the vicinity of a sharp or cornered edge than at a large plane surface. QED, the field divergence at a sharp edge is much larger than it is at a flat or large surface.

Q. Giving your answer, you said Figure 11A. Did you mean to say Exhibit 11A?

A. Yes, Exhibit 11A. Pardon me, sir.

* * * * *

Q. What is the fact as to whether or not additional equipment such as booths, etc. are necessary in the use of a system such as exhibited in 17A?

A. From the standpoint of coating material loss and, therefore, from the standpoint of coating material collection, so you get it out of the area there is no need for such collecting devices or trapping devices but they are necessary from a standpoint of ventilation of the general area, to remove solvent vapors which are annoying to the operator and to the surrounding personnel, so, generally speaking, you have to have this operation carried out in a ventilated area.

Q. Is there any difference in the character of the quipment that is involved in a conventional commercial installation for eliminating paint on the one hand and vapor fumes on the other?

A. Yes, there are. Normally you would be permitted to rid yourself or rid the area of the solvent or the paint fumes by a simple ventilating device, making no effort to trap or otherwise get rid of that material whereas if you had paint entrapped or entrained in the air stream, as you do with other processes then naturally you have to scrub the air or otherwise strain it to get rid of that material. I might add if the operation is very large, in other words, if there is a lot of paint being used and if you happen to be in a residential area, the law requires that you scrub the air. Los Angeles is a typical example of what might happen when you don't do that.

* * * * *

Q. Now, returning to the bell a moment, in 17A, if a series of objects were to be moved past say one of the bells which had varying shapes as such by way of illustration as the letter H and letter O, or some other shape like the letter X, in series, what would be the condition of the electrostatic field between the bell and the articles being coated with respect to size and shape?

A. The field would originate at the atomizing bell, and since the front edge of the bell was annular in presentation,

the field at that end would be annular in shape and it would modify and change its contour as you went from the bell to the article on the conveyor and if the article on the conveyor is in the shape of the letter H, the field at that end of the field would have so modified its shape that it would then essentially conform to the letter H and if the letter H was proportionately in size so the field could extend over its entire surface it would do so.

Q. What would happen when a new shape came along like the letter O?

A. The end of the field would be appropriately modified by that shape in order to essentially conform to the shape of the article on the conveyor.

Q. Assume the same set of conditions for articles traveling on the conveyor for Exhibit 17B. What would happen?

A. Under those circumstances, the single electrostatic field we are speaking about here would originate at the disc in the form of a line which would be horizontal due to the fact that the disc, 17B, is horizontal and would extend out toward the article on the conveyor and would have the shape of the article which was dictated by the shape of the articles on the conveyor. Now, if there were a group of letter H's going along on the conveyor, each of those letter H's would have its portion of that field so shaped that it would conform to the letter H on the conveyor and as the letter O would come along, as it entered the loop, that portion of that field would shape itself to the form of the letter O.

Q. Suppose the articles had a spacing between them, what would occur in that space from the standpoint of the atomizing head supplying paint to that space?

A. That space would be, the field which would normally be directed at that space would be redirected automatically by its own characteristics to conform to the shape of the nearest articles before and behind the space on the con-

veyor and coating material would go into that space and appear as coating on the next adjacent two articles. If the space became too large, then the field may not reach those two articles and die, so to speak, as far as the coating operations are concerned.

* * * * *

Q. Will you refer to Claim Two, Dr. Miller, please? I will treat the language of that all the way down to the part that says "The step of," and before that expression, the claim is defined as "a method of electrostatically distributing liquid as a coating on a surface wherein liquid supplied at a controlled rate to a single-fluid atomizing head is atomized into discrete particles and such particles are dispersed to form a spray and deposited in a dispersed condition while still in liquid state as a finished coating on a surface spaced a substantial distance from the head * * *"

Now, can you tell us whether or not the disclosure of the method of exhibit 8A is that type of method as defined in that language?

A. It is, sir.

Q. Is the method of the Plaintiff's System as exhibited in Exhibits 11A and 11B respectively that type of method?

A. It is, sir.

Q. And what is the answer to the same question with respect to the Ransburg commercial method, 17A, the bell type?

A. It is.

Q. What is the answer with respect to Ransburg method 17B?

A. It is there also.

Q. The disc type?

A. Yes.

Q. Would there be any difference in your answer with respect to 17B when the same question is applied to 17C,

A. My answer would be the same, sir.

Q. Does that apply to your answers given throughout the rest of the testimony where I referred to the elements of Claim One?

A. It does, sir.

Q. Now, do you find any response to the following language:

> "The step of maintaining between the head and the article an electrostatic field which electrostatically effects said atomization, dispersion and deposition."

Do you find that in the method of the System of Exhibit 8A?

A. I do, sir.

Q. Now, where do you find that?

A. That is indicated in Figure 1 of Exhibit 8A as the voltage supply is shown as being connected between the ground and the atomizing head, and the article is spaced from the atomizing head and grounded as indicated by 12, and in the words of the patent, a single electrostatic field is established between those two.

Q. Do you find any response to that in Figure 9 of Exhibit 8B?

A. Yes, that is also shown in Figure 9 of Exhibit 8B which is a diagrammatic representation of a general form of this System.

Q. Now, do you find any response to that provision or step that I read in the Plaintiff's System illustrated in Exhibits 11A and 11B respectively?

A. In Exhibit 11A, the power supply again is shown as being connected between ground and the atomizing head or emitter, and the article being grounded and placed opposite the emitter would indicate that a single electrostatic field is maintained in this particular situation also.

Q. What effects the atomization in the System of Exhibit 11A and 11B?

A. The electrostatic field.

Q. And the dispersion?

A. Is also effected by the electrostatic field.

Q. And the deposition?

A. Likewise effected by the electrostatic field.

Q. I will now direct your attention to the Plaintiff's commercial System illustrated in Exhibit 17A, which is the bell system. Do you find any response to that provision in that system?

A. Here also the fact that the power supply is connected to the atomizing heads would indicate that there is a single electrostatic field maintained between each of the atomizing heads and the articles on the conveyor.

Q. How about the disc systems of 17B and 17C?

A. Same situation exists in those two cases.

Q. And in these commercial systems of 17A, 17B and 17C respectively, what effects the atomization?

A. The electrostatic field.

Q. And the dispersion?

A. That is also effected by a single electrostatic field.

Q. And the deposition?

A. Likewise effected by the electrostatic field.

Q. Now, will you now direct your attention, please, to Claim Ten which appears in the seventh column of that patent. I am still referring to Defendant's Exhibit No. 3 which is the method patent, 536 in suit.

This Claim provides for a method of electrostatically distributing liquid as a coating on an article. Is the system in the patent in suit, is it illustrated in Exhibit 8A, that type of system?

A. It is.

Q. How about the system of the plaintiff as illustrated and exhibited in 11A and 11B respectively?

A. Also that type of system.

Q. How about the commercial systems of the plaintiff's in 17A, 17B and 17C respectively?

A. Likewise they are electrostatic coating systems.

Q. Each of them?

A. Yes.

Q. Now, the Claim continues— "the step of moving the article past and in spaced relation to a zone of atomization." Do you find any response to that language in the Starkey patented system of Exhibits 8A and 8B?

A. In Exhibit 8B the sheet is shown as being moved past the atomizing device and Figure 1 of Exhibit 8A, the article, 11, is indicated as being a conveyor for such carrying purposes.

Q. Do you find any response to that language in the plaintiff's system of, or the system illustrated in Exhibits 11A and 11B?

A. As far as the exhibit itself is concerned, there is no indication of the article being carried by, but I presume it could be, sir.

Q. Any response to that provision in the commercial forms of Exhibits 17A, 17B and 17C respectively?

A. In each of those particular exhibits, there is shown a conveyor for carrying the articles past, and in spaced relation to the zone of atomization which exists about the atomizing bell or disc, as the case may be.

Q. Now, the claim continues— "• • • feeding liquid coating material in a relatively narrow stream, spreading said stream to form it into a body of liquid coating material having an extent many times the maximum cross-sectional dimension of said stream." Do you find any response to that in the patented system of Exhibits 8A and 8B?

A. In the Exhibit 8A, the hoses connecting the supply source with the atomizing head certainly meet the condition of being a single, relatively narrow cylindrical stream which, when it arrives at the atomizing head, is opened up

and distributed into a dispersed condition or an extended condition in conformity with this language.

Q. Now, do you find any response to that provision in the plaintiff's construction and process exhibited in Exhibits 11A and 11B respectively?

A. Yes. There is such a thing which does exist in view of the fact that the coating material was introduced through the relatively narrow opening in the hub of the device shown in Exhibit 11B and then allowed to spread and extend out into that area between the two discs.

Q. Is there any response to that provision in the commercial construction of Exhibit 17A?

A. Yes. The coating material here likewise is fed through the tube in a relatively narrow, constricted arrangement or manner and then as it arrives at the inside surface of the bell in 17A, it is spread out into an extended body of liquid coating material having an extent many times the maximum cross-sectional dimension of that stream.

Q. What is the situation with respect to the disc type of commercial system of the Defendant in Exhibit 17B and 17C respectively?

A. Likewise here, the single tube introduction device shown carrying coating material from the supply source to the atomizing bell, introduces the material in a stream of relatively small cross-sectional area at the center of the disc and then the rotation of the disc spreads the film or coating material into a film having an extent many times the cross-sectional diameter of that central orifice.

Q. The Claim continues with the language— "Maintaining at such zone of atomization the body of liquid coating material with said body having a plurality of closely spaced aligned exposed termini of relatively small area." Do you find any response to that language in the process illustrated in the patents in suit, Exhibits 8A and 8B respectively?

A. In Exhibit 8A certainly the small streamers on the body of liquid coating would be a plurality of closely spaced, aligned exposed termini of relatively small area.

Q. You find anything that responds to that language in the plaintiff's system as is illustrated in Exhibits 11A and 11B respectively?

A. In 11B the discharge streamers indicate it certainly would be such at a closely spaced, aligned exposed termini.

Q. Do you find any response to that in the bell type of commercial system of the defendant as illustrated in Exhibit 17A?

A. Such streamers are not shown in the Exhibit 17A but certainly they exist.

Q. What is the fact as to the actual procedure of the system illustrated in 17A when it is in operation?

A. When it is in operation, the coating material certainly fulfills this condition and that the pump maintains, the pump and the rotation maintains that zone of atomization from a body of liquid coating material which has a plurality of closely spaced, aligned termini.

Q. What is the fact in answer to the same question with respect to the commercial system of the defendant as illustrated in Exhibit 17B and 17C?

A. Such exposed termini also exist in the case of 17B and 17C.

Q. And where are they to be found?

A. They are to be found around the periphery of the disc in these two cases.

Q. And now, the Claim continues—"establishing between the exposed termini of the coating material and the article moving past it an electrostatic field of sufficient strength that it both electrostatically atomizes small particles of coating material from such exposed termini and electrostatically deposits them still in the form of discreet spray particles while still in liquid state for distribution

into a continuous finished coating upon the article as it moves past the zone of atomization."

Do you find any language that responds to that Claim in the disclosure of the method patent in suit as represented by Exhibits 8A and 8B respectively?

A. In the Exhibit 8B such an electrostatic field actually is established and that electrostatic field would fulfill the conditions required by this particular step.

Q. And what is the fact as to whether you find response to that provision in the plaintiff's system as represented in Exhibits 11-A and 11-B respectively?

A. In the case of the Exhibit 11-B there is actually shown small particles of coating material which are atomized from such exposed termini and they are shown there as a, small black dots emanating from each of the exposed termini.

Q. And where in that disclosure is the electrostatic field?

A. The single electrostatic field, or the electrostatic field required in this step, is indicated as existing in Exhibit 11-A by virtue of the fact the power supply is connected to the atomized head to the other side of the power supply being grounded and the article being grounded.

Q. So the electrostatic field exists between what?

A. The electrostatic field exists in this case between the discharge streamers at the edge of the atomizing head and the article displaced opposite two in this case.

Q. Is there any response to that language in the defendant's commercial form of apparatus as illustrated in 17-A?

A. The operation of the apparatus illustrated in 17-A and of the coating system trade there certainly meets the conditions of this step in that an electrostatic field is maintained between the head and the article, which field is capable of producing streamers from which are atomized

the coating materials in conformity with the conditions of the step.

Q. What is the answer to the same question with respect to the disk forms of Exhibit 17-B and 17-C?

A. The same thing exists there in the case of the form shown in 17-B and 17-C, the exposed termini as mentioned before being existent about the edge of the atomizing disk and the field existing between those exposed termini and the article on the conveyor.

Q. In the commercial construction of the defendant, is the electrostatic field as employed of such strength to electrostatically atomize small particles of coating material from such exposed termini?

A. It is, sir.

Q. And electrostatically deposit them in the form of discrete spray particles while still in liquid state?

A. That is correct, sir.

Q. And for distribution into a continuous finish coating upon the article as it moves past the zone of atomization?

A. That is correct, sir.

Q. Now, the claim continues, "And continuously and at a controlled rate maintaining said stream to supply coating materials to said body to replace the coating materials atomized therefrom by the action of the electrostatic field." Do you find anything in the patented process of Exhibits 8-A and 8-B respectively which responds to that step?

A. That step is certainly fulfilled by the device shown in Fig. 1 of Exhibit 8-A and in those devices shown in Exhibit 8-B, specifically in that the coating material is supplied to the device at a controlled pressure which under the existing conditions of tube dimensions, and so forth, opening dimensions would be at a controlled rate; likewise, the valve indicated in the Exhibit 8-B would be for such control.

Q. Do you find any response to that provision of that language of the process claim in the system of the plaintiff as exhibited in Exhibits 11-A and 11-B respectively?

A. In 11-B there is shown the needle valve which is for the purpose of controlling the rate of fluid delivery to this device.

Q. Does that serve to feed liquid to replace the coating material atomized from the head by the action of the electrostatic field?

A. As indicated on Exhibit 11-B a tube, which is designated as the liquid inlet tube, and I presume there would be liquid supplied to that tube from a source not shown in a manner so that the flow through the regulating needle valve would be of such a character as to maintain a stream of coating material to supply that coating material which is atomized therefrom.

Q. Do you find any response to that language in the defendant's commercial form of a system illustrated in Exhibit 17-A?

A. Yes, the pump and centrifugal rotation serves to provide to the body of liquid coating material at the atomizing zone a supply of liquid which is intended to replace that coating material which is atomized therefrom.

Q. What is your answer to the same question with respect to diagram for the commercial devices of the defendant as represented in Exhibit 17-B and C respectively?

A. They are also the pump and the rotation of the disk combined to provide this step in each of these cases.

Q. Now, the claim further said, "Said atomization and deposition both being effected in quiescent air." You have answered that in respect to one of the other claims. I will just ask you here if that characterization claimed is to be found in the patent in suit as represented in Exhibit 8-A and Exhibit 8-B.

A. It is.

Q. In plaintiff's Exhibit, device, as represented in Exhibits 11-A and B?

A. It is.

Q. And three commercial devices represented by Exhibits 17-A, B and C respectively?

A. It is, sir.

Q. No, the claim says, "The direction of movement of said article relative to said body of coating material being such as to effect a substantial displacement of the article's surface transverse to the general direction of the lines of force of the field during particle deposition to cause such lines of force to sweep such article's surface." Do you find any response to that in the patent in suit as represented by Exhibit 8-A and 8-B respectively?

A. Yes, sir. In Exhibit 8-A, Fig. 1, the lines of force would generally emanate from the atomizing device and would terminate on the article, striking the article's surface essentially perpendicular to that surface, and the movement of that surface would therefore be essentially perpendicular to the lines of force of the electrostatic field.

Q. Now, assuming that the article shown in blue in Exhibit 11-A, of the plaintiff's system, is being moved on a conveyor, past the atomizing head which is, I might say for the Court's benefit, the subject matter of the interrogatories that have been introduced and the answers thereto, would you find response in the plaintiff's system with such moving articles to that provision of the claim?

A. Such motion here also would be perpendicular to the direction of the lines of force.

Q. And what is the answer to the same question with respect to the defendant's commercial device or system illustrated in Exhibit 17-A?

A. The same situation exists in that device.

Q. And that is by virtue of what?

A. By virtue of the fact the field emanates from the atomizing device and terminates on the surface of the object being coated. Motion of such object would, therefore, automatically be in a direction perpendicular to those lines of force.

Q. What is your answer to the same question as applied to the commercial construction of, or, systems illustrated in Exhibit 17-B and 17-C, respectively?

A. The same thing exists in those two situations.

Q. And that is by virtue of what?

A. By virtue of the field which exists between the disk edge and the article on the conveyor.

Q. The claim continues as follows: "The spacing of said body of coating material from the article being great enough that the atomized particles will disperse under the action of the field as they move toward the article until they are distributed over and deposited onto a portion of the article's surface having an area many times the area of the exposed termini."

Do you find any response to that provision in the claim in the system of the patents in suit as illustrated in Exhibits 8-A and 8-B respectively?

A. Certainly the spacing is sufficiently great in Exhibits 8-A and 8-B to permit them to meet the step of this particular portion of the claim.

Q. Now, do you find any response to that provision in the plaintiff's system as illustrated in Exhibits 11-A and 11-B respectively?

A. Such spacing is sufficiently great to permit this condition to be met and actually in 11-B, the dispersion is actually shown as taking place; therefore, it likewise would be illustrative of meeting this particular requirement.

Q. What is your answer as to whether that provision can be found in the system of the defendant used commercially as the bell system as illustrated in Exhibit 17-A?

A. That is also true. The bell is positioned at a distance away from the device being coated so that the space between its front edge and the device being coated permits this dispersion that is referred to in this case.

Q. And what is your answer to the question as applied to the commercial systems of the defendant as illustrated in Exhibit 17-B and Exhibit 17-C respectively?

A. In 17-B and 17-C the loop diameter has to be sufficiently large to provide this dispersion that is referred to.

* * * * *

Cross-Examination by Mr. Meroni.

Q. According to your testimony earlier in this proceeding here, it is my understanding that between the years 1938 and 1943 you worked for the Ransburg Company as a consultant; is that correct?

A. That is right, sir.

Q. What type of work did you do for Ransburg during that period of time?

A. I worked periodically with Harold Ransburg, aiding him in setting up and planning experiments relative to his development of electrostatic spraying.

Q. His development, I believe you said, materialized in the No. 1 System, as you call it; is that right?

A. That is correct.

* * * * *

Redirect Examination by Mr. Hume.

Q. Now, referring to your testimony of yesterday, I think I understood you to say that in 1943, power packs were not generally available on the market from other sources which would be suitable for the purposes that the Ransburg Company had in mind at the time and then you later said that there were power packs on the market of proper voltage and of proper amperage. In what way would you say that the power packs that were available as stated were not satisfactory for Ransburg's purposes?

A. They were not safe, sir.

Q. Is that the—Any other characterization you would apply?

A. It is not safe both from a personal standpoint and from a fire-hazard standpoint.

* * * * * *

Q. Now, do you remember the exhibit that was shown to you yesterday, that had an illustration of the Zeleny device? I will put it here before you and it has been marked for identification as Plaintiff's Exhibit HHHH, and I refer you to the showing which is the little figure in the right-hand column on the exhibit. Do you remember being shown that yesterday?

A. I do, sir.

Q. I now want to ask you whether or not that particular device has any controlled feed of liquid to the outlet end of the capillary tube.

A. Actually it does not.

Q. What would happen when the electrostatic forces are turned off in that case?

A. There would be no material issue from it, from the orifice at "A."

Q. Do you have any knowledge as to the rate at which liquid is put through the device as described in the Zeleny Articles?

A. I do, sir.

Q. Can you state that for the record, please?

A. From calculations of the information which is given in Zeleny one can establish that it would take somewhere in the neighborhood of six to eight weeks to deliver a pint of coating material from such a device, pint of liquid.

Q. Running how long a day?

A. All day long, and around the clock, so to speak; continuously.

Q. Do you have any information as to how far it is between the end of the outlet of the capillary and the opposite

plate, marked "B" in this figure I have referred to in Exhibit HHHH?

A. In all cases that is only a fraction of an inch or several centimeters.

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PLAINTIFF'S EXHIBIT NNNN.

DONALD C. HOWARTH, called as a witness in behalf of the Plaintiff herein, having been first duly sworn, was examined and testified as follows:

Direct Examination by Mr. Meroni.

Q. Please state your name.

A. Donald C. Howarth, H-o-w-a-r-t-h.

Q. Where do you reside, Mr. Howarth?

A. Indianapolis, Indiana.

Q. What is your post office address?

A. Rural Route 14, Box 704, Indianapolis 20.

Q. How old are you, sir?

A. I am forty-two.

Q. By whom are you at present employed?

A. By the Ransburg Electro-Coating Corporation.

Q. In what capacity?

A. Well, I am in charge of the installation and service and purchase and manufacture of equipment, the sales engineering laboratories, and drafting.

Q. How long have you been employed by that company?

A. Since January, 1948.

Q. Can you give us a brief resume of the different positions you have held with the company since you have commenced employment with them?

A. Well, since January of '48 I have had essentially the same job that I have today.

• • • • • •

Q. Now, after your company gets this engineering data sheet from its salesman, what is done then in the normal processing of one of these matters?

A. Well, assuming that the prospect is still interested, he will send sample parts to our laboratory, and we usually request a quality standard or one that he is presently producing which meets his quality standard for use in the laboratory. We will then set up a laboratory demonstration based on the information and data sheet of the conveyor speed and work height and that type of item, using his coating material and we will run these parts for him to determine mileage figures as well as how adequately we can coat the particular parts.

Q. Are those demonstration installations set up under what you might call the most ideal circumstances from the standpoint of the use of the Ransburg No. 2 process?

A. No, I would say probably not in a good many cases.

Q. Have you not found a number of instances where, for example, in such installations, by the use of adequate air exhaust means and things of that type you were able to get a better condition than existed in the plant of the prospective licensee?

A. Oh, I think that may be true. On the other hand, I think though that most of the time the licensee makes a change in his set-up after he sees our demonstration before he installs it in his plant.

In other words, usually his existing conditions are not suitable for installing the No. 2 process in any event.

Q. Well, you certainly wouldn't make a demonstration installation that would not be the most favorable to the sale of your license, would you?

A. No, except that we are limited in our own facilities. For example, we do not have good temperature control or good exhaust conditions in our present facilities. We have quite a bit of dirt and things like that that many plants do not have.

Q. Well, is it not a fact that in some instances you have had complaints from licensees because they didn't get as good a performance as they had hoped to obtain from the demonstration they saw in your plant due to the conditions that they had not being comparable to the conditions under which you made the demonstration?

A. Oh, I would say we have had some of those, but those conditions usually exist, come about, after the demonstration as far as the existing conditions in his plant are concerned, rather than before. In other words, he makes the changes after he sees our set-up.

Q. But usually he is led to believe that he might be able to get results somewhere near as good as those you got in your demonstration if he uses your licensed process, is that right?

A. Yes. We know he can get those results.

Q. Well now, as I understand it, the engineering data sheet is first referred to the proper people in your company and then an installation is made, using the products that have been submitted and using the coating material that the particular licensee is interested in. Then what follows?

A. Well, he may or may not come into the lab to see the parts. If he comes into Indianapolis, of course, we review the whole thing with him and show him right there exactly what he can expect. We determine the mileage figures for him, so that we can determine, based upon his present painting cost, what the savings will be. Then, assuming that those savings will be favorable to him, he will be sent a license agreement or given a license agreement, if he happens to want one right there at Indianapolis.

Q. Who is it that makes the arrangement with this prospective licensee or representative of that licensee to come over and witness the demonstration at your plant?

A. That is usually done by the salesman.

Q. Salesman?

A. Yes.

Q. And the demonstration would be made with equipment such as you would propose installing in the prospective licensee's plant, isn't that right?

A. Well, as nearly as possible. We cannot always duplicate exactly the conditions he would have, but it would be very close.

* * * * *

Q. I hand you what purports to be another letter that came from the files of your company, one dated May 27, 1953, addressed to General Electric Company, comprising two pages, and ask you if you are familiar with the practice of the company there expounded relative to guaranteeing installations.

A. I don't know exactly what you have reference to as far as guaranteeing.

Q. Well, you don't as a general policy guarantee to safeguard a customer as to faulty installation of your equipment, do you?

A. Well, that actually is beyond my job with the company. I don't have anything to do with that particular phase of it.

Q. Well, isn't it part of the job of the people associated with sales in any way to know about guarantees the company makes relative to equipment it furnishes?

A. You're thinking of guaranteeing now in the sense of the functioning, just so far as the functioning is concerned?

Q. Well, my question was broad enough to embrace guaranteeing in any of its aspects, as to performance or as to installation or any of the aspects.

A. Oh, I think we, in effect, guarantee all of our installations, even though it may not be in writing as such.

By Mr. Meroni: I would like to have this General Electric letter marked for purposes of identification as Binks Exhibit KKK. This is the letter the witness just referred to dated May 27, 1953.

(Exhibit so marked.)

Q. Do you remember having any transaction in 1953 with the Altex Corporation of Milwaukee, Wisconsin?

A. Yes, I do.

Q. Do you perchance recall a letter dated April 28, 1953, wherein you wrote the Altex Corporation and, among other things, said, "As you well know, the operation of the equipment and the manner in which the equipment is used, as well as the type of coating material used, et cetera, is entirely within your control and completely beyond ours. This being the case there is no reasonable basis on which we could possibly guarantee your satisfaction"?

I hand you that letter and ask you if that refreshes your recollection of your company's policy.

A. Yes, it does.

Q. Does that indicate that your company refuses to guarantee performance?

A. No, not at all. I mean, a guarantee of satisfaction depending on what he wants to do with it is one thing and guaranteeing to reproduce what we did in Indianapolis is another matter.

Q. Well, you had a number of complaints, did you not, in the past, where customers have complained that the equipment they got did not perform in accordance with the way it operated at Indianapolis when it was demonstrated?

A. Oh, yes, sure.

Q. Have you ever refunded any initial fees because of failure to give satisfaction?

A. Yes, we have.

Q. You have?

A. Yes.

Q. In what instances?

A. Oh, I can think of two instances. Ohio Can and Crown Company is one of them—it's Ohio Can; I am not sure of the "Crown"—I believe they are one of them. They are at Massillon, Ohio. American Fabricators in Indianapolis is another instance.

Q. Did you refund all of their initial fees?

A. Yes, we did.

Q. And what did you do, take the equipment back?

A. Took the equipment back, that's right.

Q. Was that because the equipment did not perform satisfactorily?

A. No, I wouldn't say so.

Q. Well, why did you take it back then?

A. Well, in the case of Ohio Can and Crown, which I am more familiar with than the other, they actually, I believe, had a change in coating materials right after the installation was made that didn't work satisfactorily. I am not familiar with all the details on that, but I know there were some things along those lines.

* * * * *

DONALD COLIN HOWARTH, a witness called by the defendant, being first duly sworn, testified as follows:

Direct Examination by Mr. Hume.

Q. Will you please state your full name and spell both names, please?

A. Donald Colin Howarth—D-o-n-a-l-d C-o-l-i-n H-o-w-a-r-t-h.

Q. Where do you reside, sir?

A. 9131 Spring Hollow Drive, Indianapolis.

Q. How old are you?

A. Forty-three.

Q. What is your occupation?

A. I am employed by the Ransburg Electro-Coating Corporation.

Q. In what capacity are you so employed?

A. My title is Director of Technical Services.

Q. How long have you been employed by the Ransburg Company?

A. I have been employed by the Ransburg Electro-Coating Corporation since 1948.

Q. Will you tell us who in your company is in charge of the records that pertain to the licensees and licenses that are issued by the defendant company?

A. I am.

Q. Do you have knowledge of the number of licensees that exist with respect to the so-called No. 2 type of system?

The Court: As of what date?

Mr. Hume: As of the present date.

A. Yes, I do.

Q. Would you state for the Court, please, approximately how many licensees Ransburg has with respect to the No. 2 System?

A. At present there are somewhere in excess of 300 licensees.

Q. And how many licenses does this involve?

A. This involves somewhere in excess of 400 licenses.

Q. How many spray units does it involve?

A. It involves in excess of 500 spray units.

Q. How does it happen that these figures are different? Will you explain that to the Court, please?

A. Well, one licensee may have one or more licenses, and a license may cover one or more units so that one licensee could have a good number of units.

Q. When did you first start issuing licenses of the type that you have referred to and included in your answers?

A. That would be, I believe, in 1951.

Q. What has been the situation as to the progressive issuance of licenses between the time you started and the present date?

A. I am not sure I understand your question.

Q. Well, you started off with one license, obviously. What has been the character of the growth of the licensing program?

A. We have issued licenses, of course, from year to year and it has been a growing thing so that there are quite a few licenses at this time as compared with when we first started out.

Q. Can you give us just an approximation of the amount of revenue that is brought in as a result of these licenses to Ransburg as a licensor, say, at the present-day rate?

A. Oh, at the present rate it will be in the neighborhood of two and a half million dollars a year.

* * * * * *

Q. Would you name for the Court some of your licensees that come to your mind?

A. Oh, Studebaker-Packard—Studebaker-Packard Corporation, American Motors, Johns Manville, General Electric, Westinghouse, IBM, National Cash Register, Avco, Remington-Rand.

Do you care for some more?

Q. Well, can you name a few more?

A. Royal Typewriter, Underwood, Chrysler Corporation, L. A. Young Spring and Wire.

The Court: What was that last one?

The Witness: L. A. Young Spring and Wire.

Q. Are those the ones that come to you at the moment?

A. Yes, sir.

Q. And these are part of the group you have already referred to when you gave us the total number of licensees?

A. That's right, they would be included in that group.

* * * * * *

MR. DONALD C. HOWARTH, a witness called by the defendant in rebuttal, being first duly sworn, testified as follows:

Direct Examination by Mr. Gilliom.

* * * * *

Q. In the course of your duties as the employee of the corporation in charge of its records, what is the fact as to whether reports made by the licensees of the airless or No. 2 process with respect to the use or consumption of paint in the license devices come to your attention and are kept under your supervision and custody?

A. They do come to my attention and are kept under my supervision.

Q. Have you made an examination of the reports from the licensees of the No. 2 process for the year 1957 for the purpose of ascertaining from those reports the total dollar cost to the licensees in the year 1957 of all paint, varnish and lacquer used by those licensees in the licensed airless processes and systems which you have furnished to them?

A. I have had such an examination made.

* * * * *

Q. (By Mr. Gilliom.) Mr. Howarth, approximately how many—strike that.

Under the terms of your license agreements with the No. 2 System licensees at what intervals are these reports of paint use or consumption made?

A. They are made monthly.

Q. So that you would have twelve of those reports for each licensee that you had in 1957?

A. That is correct.

Q. What is the approximate total of those separate reports which are in your files and which you canvassed

for the purpose of ascertaining the total dollar cost of these coating materials?

A. I would estimate there are about 6,000 separate reports.

Q. Are those reports a part of the records that the defendant kept in the ordinary course of its business?

A. Yes, they are.

Q. Is it your practice to retain them in your custody after they are received by the company?

A. Yes.

Q. Was the examination of those reports for the purpose of ascertaining the total dollar cost of these coating materials in the year 1957 made at your direction and under your supervision?

A. Yes, sir.

Q. From those reports?

A. That is right.

Q. Now will you please state the total dollar cost to the licensees of the No. 2 System or process in the year 1957 of all paint, varnish and lacquer used by those licensees in the equipment furnished by Ransburg?

Mr. Meroni: I repeat my objection.

I further object to this examination as being improper, being irrelevant and immaterial and as being improper redirect. If this goes to the matter of commercial success of the inventions that should have been put in in their prima facie case and not by way of redirect.

Mr. Gilliom: If the Court please, first this is not redirect examination. This is a part of the defendant's case in defense of the charges of antitrust and has to do with the matter of relevant market under the allegation that this defendant has monopolized—

The Court: Of the cross counterclaim?

Mr. Gilliom: Yes that is correct, and it is a fact relevant to that issue.

It is not tendered on the matter of commercial success on the patent case.

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The Court: Well, I will overrule the objection subject to the defendant's producing these records at the office of the defendant this afternoon and this evening or tomorrow morning and recess the case tomorrow morning if it is necessary for them to complete this. And if the defendant —plaintiff, rather, needs this information after investigating it overnight and tomorrow morning, that the defendant produce those records in the Court room here to assist counsel for the plaintiff in cross-examining this witness on that subject.

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A. That total dollar cost is $6,693,642.00.

The Court: Repeat the figure.

The Witness: $6,693,642.00.

Q. (By Mr. Gilliam.) Will you give the corresponding figure, Mr. Howarth? For the year 1957 of the total dollar cost to the licensees of the air type or No. 1 system of the defendant of all paint, varnish and lacquer used by those licensees in the equipment furnished to them by Ransburg?

The Court: Will there be the same objection?

Mr. Merom: Same objection.

The Court: Same ruling by the Court.

A. That figure is $3,725,857.00.

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WILLIAM J. STELLMAN, a witness called by the defendant for purposes of rebuttal, being first duly sworn, testified as follows:

Direct Examination by Mr. Hume.

Q. Will you please state your full name and spell it, please?

A. William J. Stellman. S-t-e-l-l-m-a-n.

Q. Where do you reside?

A. 1530 West Old Mill Road, Lake Forest, Illinois.

Q. Your age?

A. Forty-seven.

Q. And what is your occupation?

A. I am a patent attorney.

Q. And have you had occasion to do patent work for the defendant, Ransburg Company, in this case?

A. I have.

Q. I am going to show you, Mr. Stellman, the Strickey Patent No. 2,794,417, which has been received in evidence in this case as Defendant's Exhibit 4, and ask you if you are familiar with that patent.

A. I am.

Q. And I will ask you if you had anything to do with the prosecution of that patent in the United States Patent Office.

A. I did.

Q. Will you turn particularly to Claim 4 of that patent and I will ask you if you are familiar with that claim.

A. Yes, I am.

Q. Did you have anything to do with the drafting of that claim during the prosecution of that application?

A. Yes, I drafted the claim for them.

Q. Now, will you tell the Court, please, the history of that claim from the standpoint of its original presentation

at the patent office until the time it was allowed and issued as a claim four in the patent and give particular reference to the dates on which the various events occurred.

Mr. Meroni: I would object to the question, your Honor. It attempts to go outside the Patent Office records of the application. It is well established the record of the Patent Office on an application is controlling as to what was done in the prosecution of the application. If Counsel is limiting his question to the file history, that is one thing; but his question, as worded, could include work done by this man in his office that is not of record in the Patent Office file, and I object to it as being too broad and being indefinite.

Mr. Hume: Your Honor, there is a charge in this case that a certain claim, namely Claim 4 of this patent, Exhibit 4, was drafted after knowledge was obtained with respect to the plaintiff's accused construction which is before the Court as drawing SK-661 which is a part of plaintiff's Exhibit ZZZZ. Now, the purpose of this testimony, your Honor, is to show that this claim was drafted without such —without any knowledge of the plaintiff's construction and this is in rebuttal of the contention that this claim was written with the knowledge of that, plaintiff's construction.

The Court: Mr. Meroni is objecting to it on the ground it is too broad, it covers the entire history of the patent exclusive and including Item 4, Claim 4. Only Claim 4 is in issue here on that particular point that you have raised, why you are offering this.

Mr. Humes: Yes, your Honor. My question is confined to Claim 4.

The Court: I misunderstood it, too.

Mr. Meroni: Your Honor, Claim 4 was amended in the Patent Office. His question doesn't limit it to the claim as it was presented in the Patent Office. It is broad

enough to cover any research work done by this man in arriving at Claim 4.

That is the point I am making.

The Court: Well, I will overrule the objection as to—I will just overrule the objection. You may answer the question. Do you recall it now?

The Witness: Yes, I do, your Honor.

The Court: All right.

A. If I may refer to some of the material which I brought with me?

Q. (By Mr. Hume.) If you will tell us the material you are referring to.

A. I am referring now to a standard diary for the year 1956 bearing my name, William J. Stellman, which has entries in it from which our charges are derived. These entries were made by me and the first entry I find pertinent to Claim 4 is an entry on July 4, 1956, where it indicates at home I worked on Ransburg case 166, re: the final rejection which had previously been entered.

Q. What is the meaning of 166?

A. 166 is the office designation of the application which resulted in Patent Exhibit 4 which you handed me. 166 is the application of the patent Exhibit 4. On July 5, 1956, my diary shows that I had a conference with Mr. Brady, one of my partners, re: Case 166 which is this case, and on July 6, 1956 there was an all-day conference with the, I believe my partner, Mr. Brady, was there, and Mr. Johnson, Mr. Downer, I believe from Ransburg; I believe Mr. Trask was there, too.

Q. Who is Mr. Downer?

A. Mr. Downer is one of the patent attorneys for Ransburg Electro-Coating Corporation.

Q. Who are the other gentlemen you mentioned?

A. Mr. Johnson is also a patent attorney for Ransburg. Mr. Trask is one of the attorneys of record in this case.

Q. Who were they representing?

A. Ransburg at the time.

Q. Continue, please.

A. At that time a suggested claim was drafted which eventually became claim four with some modifications and it was determined at that time that I should have an interview with Mr. Mitchell, who was the Examiner in the Patent Office having charge of this application.

Mr. Meroni: I move to strike the part of the answer which has to do with some other claim than Claim Four, which eventually became Claim Four. He is talking about some other claim other than Claim Four now.

Mr. Hume: Your Honor, the witness will tie that in.

The Court: Based upon the offer of counsel, the objection will be overruled.

A. Turning in my diary to July 24, 1956, there is the entry of Case 166—

The Court: (Interposing.) Is that 1956 or 1946?

The Witness: 1956.

A. (Continuing.) Case 166, conference, Mitchell, and draft claim in Washington, D. C.

Q. Do you recall such a meeting?

A. I do.

Q. Will you tell us what took place at that meeting?

A. At that meeting I had for Mr. Mitchell's consideration a draft of a new claim which would be the forerunner of Claim Four. Mr. Mitchell and I at that time discussed the claim back and forth for some time.

Q. Tell us who Mr. Mitchell is.

A. He is the Examiner or was the Examiner in Division 25 of the Patent Office having jurisdiction of the application which resulted in the patent which is in—

Mr. Meroni: (Interposing.) I move to strike the answer, your Honor. Conferences with an Examiner are not admissible. The only thing that is controlling in the prosecution

of a patent application is what is recorded in the patent application and file history. I submit that conferences between this man and the Examiner are utterly immaterial and irrelevevant and can't be used to any way vary the written record in the Patent Office.

The Court: As I understand it, there is no conversation whatever in this answer that was had with Mr. Mitchell except the subject he discussed.

Mr. Meroni: Well, I object also on the ground it is indefinite.

The Court: The objection is overruled. All it does is say that he met with the man. Your next question.

A. (Continuing.) To continue my answer Mr. Mitchell and I at that time agreed upon a claim.

The Court: We are getting into hearsay and we might as well save the record. We are going to have objections to this and the answer will go out.

Q. Was a claim drafted at that time?

A. Yes, it was.

Q. By whom?

A. By me.

Q. Do you have a copy of the claim that was so drafted?

A. I do.

Q. Will you hand it to me, please?

A. Yes.

Mr. Hume: I will ask the Reporter to mark this as Defendant's Exhibit No. 19.

(The Defendant, for purposes of identification, handed the Reporter certain document for marking and which was by said Reporter marked Defendant's Exhibit No. 19.)

Q. Is that claim that is marked "Proposed Claim" on Defendant's Exhibit No. 19 identical in every respect with the claim that was drafted at that time on the occasion of your conference with Mr. Mitchell in Washington?

Mr. Meroni: Objected to as leading. The claims can be compared on their faces.

Mr. Hume: He already said that was the claim he drafted. I just wanted to make it—

The Court: (Interposing.) It is leading. The objection is sustained.

Q. Will you compare the claim that is on the Exhibit 19 with the claim which was drafted on the occasion of your visit with Mr. Mitchell which you just referred to?

A. Making that comparison and disregarding the penciled notations on No. 19, the claim there typed as Claim 18 is a true copy of the claim that Mr. Mitchell and I agreed upon.

Mr. Meroni: I move to strike the last part of the answer about having agreed upon anything, and also not being responsive and outside the record and immaterial and irrelevant.

The Court: That part of the answer will go out as hearsay.

Q. Was that claim, as drafted, shown to Mr. Mitchell at that time?

A. Yes, it was.

Q. What was the date of that meeting?

A. July 24, 1956.

Q. Mr. Stellman, I am going to show you an exhibit which has been received in evidence in this case as Plaintiff's Exhibit ZZZZ-8 and ask you if you are familiar with that drawing?

A. Yes, I am.

Q. And I call your attention to the fact that it is marked SK-661 in the lower righthand corner.

A. Yes.

Q. Had you seen that drawing on that exhibit at the time of the drafting of the claim that you have referred to as Plaintiff's Exhibit No. 19 or rather Defendant's Exhibit No. 19?

A. No, I had not seen the drawing.

Q. What are the penciled notes on Defendant's Exhibit 19?

A. They are indications of changes in the claim that were suggested.

Mr. Meroni: I object to the answer and move to strike it as being indefinite unless it is indicated it was suggested by him or the Examiner. There is an inference there, Your Honor.

Q. Will you explain what you mean by that, please?

A. Suggested neither by myself nor the Examiner. After having agreed upon the claim with Mr. Mitchell, I subsequently discussed that claim with some of the other attorneys for Ransburg, namely Mr. Trask, Mr. Downer and Mr. Johnson at a subsequent meeting and at that meeting, these changes indicated in pencil on Exhibit No. 19 were suggested.

Mr. Meroni: I move to strike out any portion of that answer having to do with any agreements with the Examiner for the same reasons as before stated.

The Court: That part of the answer referring to agreements or conversations with the Examiner are out of the record. That is the only portion you objected to?

Mr. Meroni: That is all I am objecting to, Your Honor.

Q. Will you explain for the record what changes are shown there, and I am referring to the penciled modifications over the typewritten portion of the exhibit, Defendant's Exhibit No. 19?

A. Well, the claim, as typed—

Mr. Meroni: (Interposing.) I object to that question. I fail to perceive where it has any relevancy. They could have discussed a thousand changes and it makes no difference as far as this record is concerned. The interpretation of Claim Four is dependent upon the file history, and what changes these people discussed is not in this controversy.

Mr. Hume: Your Honor, this evidence runs to a charge that we had knowledge of a certain construction on a certain date and the proofs are running to rebut that charge and we are not talking about what the file history shows or doesn't show, and besides, I don't agree with Mr. Meroni that we are restricted to the file history. The proof here runs to the subject matter as to what we knew at the time this claim was drafted and we deny that we had any knowledge of the accused construction at the time Claim Four was drafted which is the charge made by Mr. Meroni in this case.

The Court: Would you read the question again, please?

(The Reporter read the preceding question.)

The Court: It appears, Mr. Hume, that you are qualifying this as an exhibit to admit it in evidence. There has been some changes on the face of the printed matter, I take it.

Mr. Hume: The testimony, Your Honor, is that typewritten portion of this exhibit came into being on a certain date. It was subsequently modified in pencil. I would like to get into the record just what the penciled changes are although the exhibit actually speaks for itself. However, it is somewhat perishable. We could get in here what those changes were. I don't know that it is essential because the exhibit actually speaks for itself.

The Court: I will overrule the objection on the ground you are qualifying it. If it were offered in the state it is in now, there would be objection that there were changes in there without qualifying it properly. The objection will be overruled.

A. The words "formed into" are stricken and substituted therefore is the penciled notation with the words "to be atomized from". Secondly, the phrase "from which atomization takes place" is placed in parenthesis indicating it was to be deleted.

Q. Who made those changes?

A. It is difficult to say exactly who did it. They were made at a conference in Indianapolis.

Q. Did you have any part in making those changes?

A. Yes, I was a part of the conference.

Q. And what was done after that with respect to securing Claim Four as it is in the patent?

The Court: Will you establish when that change was?

Q. When was that change made, sir?

A. The change was made at a meeting in Indianapolis which occurred, and I am now referring to my diary, on August 8, 1956.

The Court: Excuse the interruption.

Mr. Hume: Thank you, Your Honor.

Q. There was a question with respect to the subsequent steps that were taken by you toward securing the allowance of the claim which is Claim Four in the patent.

Mr. Meroni: I again object, Your Honor. It is immaterial as far as this patent suit is concerned what they did outside of the file history record of this patent.

The Court: Overruled.

A. I then drew the amendment which should appear in the file history as Amendment C, filed on August 21, 1956. After drawing that amendment, I again went to Washington and had a short interview with Mr. Mitchell again pointing out to him the changes that had been made from the claim in the form shown on Exhibit No. 19.

Q. When was that, please?

A. That was on August 21, 1956, as I see from my diary.

Q. Now, you spoke of the file history. The file history of the patent, Defendant's Exhibit No. 4, is received in evidence here as Defendant's Exhibit No. 6. I will ask you

to refer to that exhibit and tell us what amendment you refer to and what page it is found on in that exhibit.

A. The amendment that I referred to is Amendment C found on Pages 41, 42 and 43 of the file history which you have just handed me.

Q. Which is Defendant's Exhibit No. 6?

A. Yes.

Q. And what happened after that?

A. Mr. Mitchell agreed that the claim was still in allowable form so I went downstairs and filed the amendment.

Mr. Meroni: I move to strike the answer as hearsay.

The Court: The question was what did you do, and that part that was conversation will go out of the answer.

A. If I may state, I showed the amendment to Mr. Mitchell and subsequently went downstairs and filed the amendment.

Q. And was the claim allowed as filed?

A. Yes, it was.

Q. Is that the claim which now appears as Claim 4 of the patent here in evidence as Defendant's Exhibit 4?

A. It is.

Q. Word for word?

A. Yes.

Mr. Hume: You may cross examine.

The Court: Cross examine.

Are you offering 19?

Mr. Hume: Yes.

(Defendant's Exhibit No. 19 offered in evidence by Mr. Hume.)

The Court: Any objection?

Mr. Meroni: Yes, Your Honor, I object on the grounds it is immaterial and irrelevant.

The Court: The objection is overruled and 19 is admitted and read in evidence.

(DEFENDANT'S EXHIBIT NO. 19 is admitted and read into the evidence, and made a part of the record in this case, said exhibit being in the words and figures following, to-wit:)

(Here Insert.)

Mr. Meroni: I don't believe I have even seen Exhibit 19, Your Honor. I would like to look at it.

The Court: I will withdraw the admission of it. I thought you had, when you stated your objection here.

Mr. Meroni: I renew my previous objection and I object to it on the further ground that it is not the best evidence of Claim 4 is, this being a carbon copy with some changes on it.

The Court: What do you say about that?

Mr. Hume: Your Honor, that is not offered for what Claim 4 is; it is offered to show the subject matter of the claim that was drafted on the occasion of the meeting with Mr. Mitchell in Washington on the date stated by the witness. And I say this is the best evidence. It is the copy that the counsel had in his files on that.

Mr. Meroni: It is still not Claim 4, Your Honor.

The Court: The objection will be overruled and Exhibit 19 is admitted and read in evidence.

* * * * *

PLAINTIFF'S EXHIBIT KKKK.

EDWIN M. RANSBURG, being first duly sworn to testify the truth, the whole truth and nothing but the truth relating to said cause, deposes and says:

Direct Examination by Mr. Charles Meroni.

Q. 1. Please state your name.

A. E. M. Ransburg.

Q. 2. And the "E" stands for what?

A. For Edwin.

Q. 3. Where do you reside, Mr. Ransburg?

A. Indianapolis.

Q. 4. How old are you, sir?

A. Forty-three.

Q. 5. By whom are you employed presently?

A. Ransburg Electro-Coating Corporation.

Q. 6. In what capacity?

A. Vice-President.

Q. 7. As Vice-President you have any particular duties assigned to you?

A. Yes, I administer the Engineering Department.

Q. 8. Are there other Vice-Presidents?

A. Yes.

Q. 9. And do they have charge of other fields of activities as distinguished from yours?

A. Yes, sir.

Q. 10. Who are they?

A. Gregg Ransburg, Secretary; Harold Ransburg is Vice-President in charge of sales and installations.

Q. 11. Who is President?

A. Harper J. Ransburg.

Q. 12. Now, Gregg and Harold are your brothers, are they?

A. Yes.

Q. 13. And Harper is your father?

A. Yes.

Q. 14. How long have you been Vice-President?

A. Since the forming of the corporation.

Q. 15. Approximately when was the corporation formed?

A. 1948.

Q. 16. Was there a predecessor business on which the corporation was based?

A. Yes.

Q. 17. What was the name of that business?

A. Harper J. Ransburg.

Q. 18. Was that a corporation or partnership?

A. Partnership.

Q. 19. Did the transition from the partnership to the corporation have much the same business as the partnership had?

A. Yes.

Q. 20. In other words, you were merely changing from a partnership status to a corporate status, is that about it?

A. Yes.

Q. 21. Who were the partners?

A. The present officers of the Ransburg Electro-Coating Corporation.

Q. 22. When was the partnership formed?

A. I think 1941.

Q. 23. And at the time of the formation of that partnership, what was the general nature of the business?

A. Well, the primary part of the business was manufacturing and selling house furnishing merchandise.

Q. 24. When did that partnership, if at all, get into the business of electrostatic plating or coating or whatever you call it?

A. We had, prior to that time, been doing work in electrostatic painting, prior to 1941.

Q. 25. How far do your activities go in that respect?

A. To about 1937.

Q. 225. (By Mr. Meroni.) Now, getting back to this development work that you carried on with Mr. Starkey leading up to the filing of your application, the last stage we arrived at was this detearing stage. What was the next step in the program?

A. It is my recollection that last we arrived at was spraying onto a sheet of paper from this radar part. Following that, Starkey and I discussed trying to make some apparatus that would practice the invention and in early December we had a device constructed.

Q. 226. Of what year, sir?

A. 1943, along the lines shown in Figure 1, but without division in the atomizing head; just a series of holes in the bottom of a V-shaped sheet metal trough.

Q. 227. Let's see what structure you did develop that was new, if any.

A. Well—

Q. 228. (Interposing.) You didn't have to develop a container for the paint such as 18, did you?

A. We did.

Q. 229. You did develop a container for the paint?

A. Yes.

Q. 230. What type of a container?

A. It was made of sheet metal and it went down to a V. I guess it was very similar to what is shown in Figure 2.

Mr. Hume: Before you answer, make sure you understand the question.

Mr. Meroni: Let me rephrase it.

Q. 231. (By Mr. Meroni.) Mr. Ransburg, I was talking about the element 18 in Figure No. 1.

A. Element 18?

Q. 232. Yes.

A. That is what we built.

Q. 233. That is a reservoir for the paint, isn't it?

A. Yes.

Q. 234. You didn't have to develop any reservoir for paint, did you?

A. We had this one. We designed this one and had it built.

Q. 235. I mean the actual paint or receptacle for holding the paint, you could use any receptacle for that purpose, couldn't you?

A. We wanted to feed it here to a V-shaped trough.

Q. 236. According to your patent, 18 represents some sort of, it looks like a rectangular—

A. (Interposing.) On 18? I am sorry. I was looking over here.

Q. 237. You took some tank for that purpose?

A. We had a standard pressure tank.

Q. 238. And the conduits, 19, were conventional, were they not?

A. That is right.

Q. 239. And I believe the pack, 20, was a conventional pack, according to you?

A. Yes.

Q. 240. So that the thing you developed then is this thing designated by the numeral 13, is that correct?

A. Yes.

Q. 241. And that is what might be termed the emitter?

A. That would be a satisfactory word. We call them atomizing heads.

Q. 242. Well, does any atomizing actually take place in that device, 13?

A. Just in front of the head.

Q. 243. Not in the interior?

A. No.

Q. 244. Now, in your work with Mr. Starkey in December of 1943, just what did you do in arriving at the head, 13?

A. We, I believe, sketched it out and then one of the

shop employees took a piece of sheet metal and bent it into the cross-section or shape shown in Figure 2 and drilled a series of holes across the bottom of the V and put a paint hose, on the back side of the head.

Q. 245. That is the conventional conduit or hole, 19, leading to the paint reservoir, 18?

A. That is right, paint reservoir 18, yes.

Q. 246. Now, you say the discharge edge, 17, is provided with a series of orifices or holes?

A. Fifteen.

Q. 247. Is that the way you constructed it?

A. Let's see, discharge edge, 17, provided with a series of orifices—

Q. 248. (Interposing.) Then, as I understand it, you drilled the smaller end of this V-shaped device so as to provide it with a plurality of spaced holes, 15, is that correct?

A. Aren't the holes called 17-A?

Q. 249. The edge is 17-A and the holes are 15. They call them orifices, which is the patent lawyer's language for holes.

A. Along its discharge edge, 17-A, we provided orifices, 15.

Q. 250. How did you determine the spacing of the holes at that time? How did you know how to space them?

A. Well, we just spaced them what we thought would be about right.

Q. 251. Did you guess at it?

A. Yes, we guessed at it.

Q. 252. So that as the paint passed through this edge, 17-A, or the bottom of this V-shaped trough, it was divided into a plurality of streams by these orifices, is that right?

A. Well, a little droplet would ooze out of each hole.

Q. 253. You didn't leave the lower edge, 17-A, completely open in any sample you built at that time, did you?

A. No.

Q. 254. So that the lower edge 17-A of the V-shaped head, actually had means for dividing it up into these droplets?

A. It was continuous sheet metal with holes drilled in the sheet metal.

Q. 255. Even though you had no electrostatic force on, the liquid would be divided by those holes as it dropped out of there?

A. Yes.

* * * * *

Q. 271. There the object is represented on Figure 1 as in Article 10. How does that compare with the part you were using when you made these developments with Mr. Starkey?

A. Most of our tests were carried on with a paper backed up by a metal electrode.

Q. 272. You know what the Article 10 is supposed to represent?

A. I think a canister can or bucket is what we had in mind.

Q. 273. That is grounded there?

A. Yes.

Q. 274. At 12?

A. Yes.

Q. 275. And it constitutes the other electrode of the electrostatic field?

A. Yes.

Q. 276. One electrode is the head, 13, and the other electrode is the Article 10, is that right?

A. Yes.

Q. 277. Now, did you at that time try different voltages?

A. I don't think at that time.

Q. 278. Well, did you at any time prior to the filing of

your application try different voltages with the system that you tested, like Figure 4?

A. I think we may have. I think we probably did.

Q. 279. What is your recollection?

A. I think we probably did.

Q. 280. You recall any particular voltages?

A. No. Most of the work was carried on with this voltage pack that had a rated capacity of 85 to 90 kilovolts.

Q. 281. That was a 60 cycle, 220 job?

A. Yes, 220 input.

Q. 282. Did you try out any systems like that shown in your Patent No. 2685536 prior to the filing of your application, of any power packs you know of other than this one you have been talking about?

A. We may have tried it on some packs rated at 130 but their actual voltage is considerably less than 130.

Q. 283. You are not very sure of that, you say?

A. No.

Q. 284. If you had tried it out before on a different pack, is it possible that you could identify that pack at this time? In other words, could you tell us what pack it was?

A. I don't specifically remember trying it on any packs other than this one. Most of our experimental work was carried on with this one voltage.

* * * * * *

Q. 970. Let's get down specifically and tell me specifically. You have formulas here. Tell me specifically how you base your monthly fees.

A. We base our monthly fees practically in all instances on, for instance the No. 2 process—that is what you are mostly interested in?

Q. 971. Let's take the No. 2 process.

A. On the amount of paint consumed and we take a percentage of that. They pay us a percentage of the value

of the coated material they spray and that percentage varies, compared to the size of the article.

Q. 972. But it is based also on your previous running of the unit here, isn't it, or at some place else previous to the customer taking it over?

A. It is based upon our knowledge of that type of article.

* * * * *

Q. 975. Mr. Ransburg, I hand you your Bulletin No. 100 entitled "Pricing Guide" dated May 27, 1953, comprising five sheets of paper, and ask you if that, under the heading No. 2, spray process, on page 2, pertains to the pricing of your so-called No. 2 airless electrostatic system.

A. Would you read that, please?

(The last question was read by the reporter as follows: "Mr. Ransburg, I hand you your Bulletin No. 100 entitled 'Pricing Guide' dated May 27, 1953, comprising five sheets of paper, and ask you if that, under the heading No. 2, spray process, on page 2, pertains to the pricing of your so-called No. 2 airless electrostatic system.")

A. On page two?

Q. 976. Yes.

A. Yes.

Q. 977. Now, I would like to ask you what is it your home office does to determine the monthly paint costs where it says here "Determined by home office"?

A. Well, it says monthly percent paint cost.

Q. 978. Yes. We would like to know what your home office does. Tell us everything your home office does in order to arrive at that.

A. We get the information on the type of articles we wish to coat, including dimensions, and then they are generally fitted into one of the charts, the last two pages

of this bulletin, which determines per cent of the paint bill we want.

Q. 979. How do you fit them into one of the charts? Can you take an example?

A. This one marked "Pricing Chart No. 3, flat sheets for box-shaped articles having a maximum thickness of one inch," if the article has a maximum thickness of one inch, that is one dimension and the next dimension is 14 or more inches and the next dimension is 22 or more inches, and in that instance our price would generally be ten per cent of the cost of the coating materials sprayed for the monthly fee.

Q. 980. How do you arrive at the figure of ten per cent?

A. We just arbitrarily take ten per cent on that, because in the next article, which would be just a size smaller, possibly similar dimensions, but smaller, in the second and third dimensions, we get a larger percent of the paint bill on that.

Q. 981. Then you just arbitrarily set those percentages? You pick them out of the thin air, so to speak?

A. I didn't mean to imply that. We arbitrarily set them.

Q. 982. From what basis?

A. In relation to efficiencies of using coating material by competitive systems of electrostatic spray painting.

Q. 983. Aren't those percentages determined by first running the system yourself and ascertaining what the likelihood saving in paint could be under proper condition?

A. We have run tests on each of this class of article.

Q. 984. I understand you have run tests but the point I am asking is, don't you first run these articles in an installation that you think should approximate the installation of it in the field, and base it on the paint saving that you think should be effected under as efficient an operation as you carry out?

A. No, we don't do that on every job.

Q. 985. You spot it and do it on some jobs, don't you?

A. If the article falls in a certain class, then the percentage applies to that class of article as would apply to that class of article.

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Q. 1108. Well, I mean how did it come that your company, how did it come about that your company acquired so many of these patents from third parties or acquired rights under them, beginning I believe with the Pugh Patent?

A. Well, on the Pugh Patent, we had done some development work on electrostatic painting and in the course of that work ran across the Pugh Patent and we wanted to be certain that we were not liable to a company like Western Electric for patent infringement.

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Q. 1167. These forms of licenses that your company got up under your direction were not intended for any specific people? They were intended for general use, weren't they?

A. What do you mean?

Q. 1168. You didn't get them up with specific licensees in mind at the time you prepared the drafts, did you?

A. Of the form?

Q. 1169. Yes.

A. Well, they were prepared for what we considered the average licensee and as you noted a little while ago, there were some typed forms from time to time, typed licenses.

Q. 1170. I don't think you quite understood my question. What I am trying to say is, you were willing to license anybody in the field that wanted a license. You weren't limiting your licenses to a specific class or group of customers, were you?

A. It was always our intention to not try to license somebody if the process wouldn't work, unless we felt confident that they would be satisfied with the results and it would make them money.

Q. 1171. Well, say John Doe came here from Texas and said, "I want a license." If he had the wherewithal to pay for it and he wanted your type of license, you would give him the license, wouldn't you?

A. Well, on that, if that is the full fact situation, I wouldn't know, because I have never been faced with that problem before. I believe we would give him a license if we felt it would be a worth while unit, one that would do him some good, but if we thought it would have hurt our reputation, our process, in the event it did not perform satisfactorily for him, if he expected miracles, beyond what the process could do for him, but we have never had that situation where the customer wanted such a license in such a situation, where we weren't in agreement.

Q. 1172. In other words, you prefer to grant a license only where you knew that the equipment that was going to be used would meet your requirements of what the equipment could do?

A. Well, we have not been interested in our requirements. We are interested in being sure that the customer be satisfied.

* * * * *

Q. 1310. Your company is a closely held corporation?

A. Quite closely held. It is substantially the Ransburg Corporation.

Q. 1311. Well, it is not generally a publicly held corporation?

A. No, it is not.

Q. 1312. I would assume the principal stockholders are your father and your brothers, is that correct?

A. Yes, and myself.

* * * * *

MR. EDWIN M. RANSBURG, a witness called by the defendant in rebuttal, being first duly sworn, testified as follows:

Direct Examination by Mr. Gilliom.

Q. Will you state your name?

A. Edwin M. Ransburg.

Q. Where do you live, Mr. Ransburg?

A. 5615 Washington Boulevard.

Q. And what is your occupation?

A. I classify myself as a manufacturer also.

Q. Do you hold an office with the defendant, the Ransburg Electro-Coating Corporation?

A. Yes, sir.

Q. What is that?

A. Vice President.

Q. And in general what area of duty has been delegated to you by the corporation?

A. Administer the research and development and consult with legal counsel.

Q. And you are the son of Harper J. Ransburg?

A. Yes, sir.

Q. You were a member of the partnership of the Harper J. Ransburg Company at the time it was engaged in the electrostatic coating business prior to the incorporation of the defendant corporation?

A. Yes, sir.

Q. Were you also working with Mr. Harper J. Ransburg as a sole proprietor in the manufacture of housewares and some of the early developments of electrostatic coating prior to the formation of that partnership?

A. Yes, sir.

Q. Mr. Ransburg, were you familiar with the procedure which the defendant followed in or about May of

1953 in which the defendant sent letters to all of its existing licensees informing them in substance if they would desire not to have the Ransburg equipment, but to retain a license without equipment, they might do so upon the basis of reduced fees?

A. Yes, sir.

Q. Will you please examine Plaintiff's Exhibit Z-2 and state whether that is typical or characteristic of the letters which were sent at that time to licensees which already had your equipment and were using it?

A. Yes, sir.

Q. Mr. Ransburg, will you please examine Defendant's Exhibit No. 26, which has been received in evidence in this cause, and particularly the third page of that exhibit which contains some form letters which are designated Letter E, Letter F, etc. I call your attention particularly to the form letter designated Letter E, which in substance informs the existing licensee that if he should wish to obtain or furnish the equipment for the practice or the process from some source other than Ransburg that his monthly fees would be reduced by the stated amounts and that there would also be a reduction in his initial fee. I will ask whether at about the time these letters were sent out in May of 1953 there were some existing licensees notified that not only their monthly fee but also their initial fee would be reduced if they sought to obtain additional equipment elsewhere?

A. They were.

Q. Under what circumstances was that done?

A. If at that time they signed a contract requiring us to supply the equipment, and the equipment had not yet been shipped, we advised them by that type of form letter, that there was a price differential if they wished to change from that license to another one.

Q. In other words, that would be in instances where

the agreement for the use of the process had been fully signed and executed by the parties but you had not yet shipped or delivered the equipment and they had not actually started the use of the system?

A. That is correct.

(The defendant, for purposes of identification, handed the Reporter a certain document for marking, and which was by said Reporter marked Defendant's Exhibit No. 33.)

Mr. Gilliom: I hope you will forgive the delay. I think if we mark several of these exhibits simultaneously, we can have them identified together and it will ultimately save time if you will bear with us for a moment.

(The defendant, for purposes of identification, handed the Reporter certain documents for marking, and which were by said Reporter marked Defendant's Exhibits Nos. 34, 35, 36, 37, 38, 39 and 40.)

Q. Mr. Ransburg, will you please examine the documents which have been marked for identification as Defendant's Exhibits 33, 34, 35, 36, 37, 38, 39 and 40 and state whether those are letters which were mailed on or about the dates appearing thereon which I think in all instances —I beg your pardon—which were mailed on or about the dates appearing thereon to the addressees of each of them by Ransburg Electro-Coating Corporation.

A. What is the question again, please?

(The preceding question was read by the Reporter.)

A. They are.

Q. And are those letters of the type which you mentioned in the answer to your earlier question where the addressee of the letter had executed an agreement with your company for the use of one of the processes and had not yet received the equipment from them?

Mr. Meroni: I object to the question as being leading. The letters speak for themselves.

The Court: Objection overruled, you may answer.

A. Yes.

Q. I note that there is some difference in the reduction in the initial and monthly fees which is stated in these various exhibits from 33 to 40 inclusive. Will you state the broad reason for the difference in those proposed reductions?

A. Differences in type of units and the type of equipment that we were obligated to ship.

Q. So that the particular reduction which was offered depended upon the type of the system which that particular addressee or licensee had or was contemplating?

A. Yes.

Q. Mr. Ransburg, to your knowledge as an officer and director of the defendant, and to your knowledge in any capacity, has any prospective licensee at any time been refused a license to use either the air type No. 1 Process or the airless type No. 2 electrostatic spray painting system without the defendant furnishing equipment, installation, supervision and replacement parts service?

A. No.

Q. To your knowledge, has the defendant ever refused to quote the fees or terms upon which a license without equipment would be available to any person who asked for such a quotation?

A. No.

Q. To your knowledge has anyone ever requested a license to use the airless type No. 2 Process, or for that matter, the air type No. 1 Process or System under any specified or particular patent?

A. Not to my knowledge.

Q. Mr. Ransburg, after the defendant sent these letters to all of its licensees in 1953 advising in substance that if they desired a license or desired to retain a license without your equipment, did any of those recipients of

those letters subsequently enter into new license agreements with the defendant?

A. Yes, sir.

Q. How many of them?

A. Fifty-five plants.

Q. How many subsequent license agreements or contracts were consummated between those recipients of that letter and the defendant after they received the letter?

A. Ninety-seven.

Q. Will you state whether in any of those 97 agreements with those 55 licensees, the licensees selected a license without your equipment, installation, supervision and replacement parts service?

A. They all elected to have us supply the equipment and the other features.

* * * * *

Q. Mr. Ransburg, before the noon recess you had testified to the effect in substance that following the receipt of the 1953 letter to all of your licensees that a number of them subsequently executed license contracts in which they chose to take your equipment. Was General Electric Company among those licensees that received that letter and subsequently executed such agreements?

A. Yes.

Q. How many agreements did the General Electric Company execute with your company after receiving the 1953 letter?

A. In their Louisville plant alone, 16.

* * * * *

PLAINTIFF'S EXHIBIT LLLL.

HAROLD P. RANSBURG, being first duly sworn to testify the truth, the whole truth and nothing but the truth relating to said cause, deposes and says:

Direct Examination by Mr. Charles F. Meroni.

Q. 1. Would you please state your name?

A. Harold Ransburg.

Q. 2. Where do you reside, sir?

A. My postal address, you mean?

Q. 3. Yes, sir.

A. Rural Route 17, Box 530.

Q. 4. How old are you?

A. Forty-six.

Q. 5. With whom are you presently associated?

A. Ransburg Electro-Coating Corporation.

Q. 6. In what capacity?

A. Vice-President and General Manager.

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Q. 267. By the way, Mr. Ransburg, did you ever hear of a Pugh Patent No. 1855869?

A. Yes.

• • • • •

Q. 275. Did you have any dealings with Western Electric with respect to that patent?

A. Yes.

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Q. 279. And what ensued from that, if anything?

A. We bought the Pugh Patent.

Q. 280. What did you pay for it?

A. I don't remember but I think something like $2,500.

Q. 281. You acquired the entire ownership to it?

A. I wouldn't be sure whether we got exclusive rights or an assignment or—

Q. 282. (Interposing.) Well, isn't it a fact that your company owns that patent or did own it?

A. In fact, I believe we do. I don't know whether it was an assignment or purchase or exclusive license, or what.

Q. 283. Can we have the agreements and the correspondence on that patent, please?

Was your company charged with infringement of the patent?

A. No, I don't believe so.

Q. 284. How did it come to your attention?

A. Well, it came to our attention during our application for our first patent on the No. 1 process.

Q. 285. Weren't you informed that the claims of that patent were broad and were applicable to what you were doing?

A. Well, it was due to this patent that our No. 1 process claims were somewhat restricted.

Q. 286. Who recommended that you acquire the patent?

A. Well, I am not sure but I presume it was Ralph Lockwood.

Q. 287. Now, you say you did some work with that experimentally or supervised it, is that correct?

A. Yes.

Q. 288. According to that patent, you establish an electrostatic field and then you emit or spray into that field, is that correct?

A. Yes.

Q. 289. And when the electrostatic field is on, the particles of the material are energized and are attracted and deposited on the article to be coated. That was the theory behind it.

A. That was his theory, yes.

Q. 290. Did you ever check to see whether they had

ever built one of those out at the Western Electric Company at Hawthorne, Illinois?

A. Mr. Pugh told me they had not.

Q. 291. Where did you meet Mr. Pugh?

A. He was down here several years after our negotiations with Western Electric.

Q. 292. Was he still employed by the company then?

A. Yes.

Q. 293. And for what purpose did he visit you?

A. To see our electrostatic painting processes.

Q. 294. Did he just of his own accord come here, or did you invite him?

A. We no doubt invited him, like we do everyone that has any interest in it. It was no doubt initiated by him. It was on a specific painting problem as I recall it.

Q. 295. He thought a great deal of his patent, didn't he?

A. He was very pleased with himself. Pardon me. I don't mean with himself, but I mean he was very pleased with the thought or idea.

Q. 296. Did he indicate to you or did you ascertain in any way that he had worked on this type of a development?

A. I ascertained that he had not.

* * * * * *

Q. 306. I call your attention to a Smyser re-issued patent No. 22419 and ask you if perchance, if that is the patent you are referring to?

A. Yes, I believe it is.

* * * * * *

Q. 313. What was the occasion of your acquiring rights under this patent?

A. Well, it had been suggested that some of our customers might be concerned about it if they took a license under our No. 1 process patents.

Q. 314. You recall whether you obtained an exclusive license or non-exclusive, or what?

A. I don't believe it was an exclusive license, no.

Q. 315. But you did obtain the right to grant licenses under this patent, is that right?

A. I don't know. At least it protected our customers.

* * * * * *

MR. HAROLD RANSBURG, a witness called by defendant in rebuttal, being first duly sworn, testified as follows:

Direct Examination by Mr. Gilliom.

* * * * *

Q. Will you tell us in what year this partnership was formed, Mr. Ransburg?

A. 1941.

Q. What other business was that partnership engaged in, that is, aside from the business of developing and marketing electrostatic spray painting processes?

A. We were in the business of manufacturing and marketing bread boxes, canister sets, and wrought iron flower pot holders, household kitchenware items and gift items.

Q. And prior to the formation of the partnership in 1941 by whom was that business conducted?

A. Harper J. Ransburg Company.

Q. What sort of legal entity was it?

A. Sole proprietorship of my father's.

Q. Were you and your brothers associated with your father in that business at some time prior to the formation of the partnership in 1941?

A. Yes.

Q. By what means did the proprietorship and subsequently the partnership paint its bread boxes and canister sets, etc. before the development of what has been referred to as the No. 1 Electrostatic Process?

A. Mostly by the conventional air spray hand guns, some

dipping and brush painting on the decorations, the decorative part of it.

Q. Was that true for some period of years before the electrostatic processes came into knowledge?

A. Yes.

Q. What were some of the shortcomings of the air spray gun method of painting those wares as you observed them?

A. Well, the major shortcoming was its inefficiency, the amount of over spray that went past the work we were spraying.

Q. Did you personally, and the members of the—I should say those who were associated with the Harper Ransburg Company and the proprietorship take any steps toward improving the method of painting those housewares and so forth?

A. Yes.

Q. Just state briefly what your efforts were along those lines.

A. Well, the first major step was to attempt to dip wrought iron instead of spraying it, because it was obviously the most inefficient, the greatest loss came about, percentagewise came about in the spraying of the wrought iron and the dipping process. We had many difficulties in the way of tears and sags and runs and other well-known shortcomings of dipping. And then we started working on the electrostatic painting process to overcome—electrostatic spraying process to attempt to get a higher efficiency with equality of spray.

Q. In this proceeding there has been reference to a system or method known as the detearing system. Was that used by you in connection with the dipping of wrought iron articles and so forth?

A. Yes, that was the first thing that we really put to productive use in the electrostatic painting field.

Q. In substance, what did the detearing process do in connection with the coating of articles by dipping them?

A. Well, the objects were dipped and then drained until a substantial amount of drain-off runs off by gravity and just before the final drip begins to solidify, you might say, or dry up, it is passed over the influence of a high voltage grid, which electrostatic attraction causes the excess material to be removed from the part.

Q. That detearing process is still being licensed to some extent by the defendant, is it?

A. Yes.

Q. Did you bend your efforts toward a more efficient means of depositing paint by means of compressed air spray guns in those early days?

A. In—starting with 1937, yes.

Q. What did you do, in substance?

A. Well, we got an old second-hand X-ray transformer and set up some little experimental facilities for trying to achieve electrostatic precipitation of spray paint particles.

Q. At the time you began those experiments in that development was there any electrostatic spray painting method known to industry?

A. No.

Q. Prior to that time, had you had occasion to read the trade journals and to contact firms who marketed painting and spraying equipment in connection with the manufacture of the household items and the housewares that you mentioned?

A. Yes.

Q. In all of those contacts had there ever been brought to your attention anything such as electrostatic spray painting?

A. No.

Q. From those earlier experiments with the X-ray power pack, will you state in substance what was developed by your organization?

A. Do you mean what sort of experiments we conducted?

Q. Well, just briefly what kind of a system came out of your efforts?

A. Well, we finally—ultimately we developed what we now call the No. 1 electrostatic spray process which consisted of a series of fine wires spaced from the object to be coated, the object to be coated was grounded, we put a high voltage DC on the wires, and directed the paint spray from a conventional spray gun between the wires, and the work, in such a way that some of the over-spray would be electrostatically attracted to the grounded surfaces to be coated.

Q. Did you find that when you combined that electrostatic field with the compressed air spray gun that you got an improved efficiency of paint deposition?

A. Yes.

Q. Did you ascertain that that was something which could be used commercially by you in manufacturing housewares and so forth?

A. Yes.

Q. Did you subsequently market that process to other manufacturers of items?

A. Yes.

Q. When did you begin commercially licensing others to use the so-called No. 1 or air-type process?

A. I think the first one that stayed in production and was outside of the experimental range was in 1944.

Q. What were the principal advantages of the air-type electrostatic system over the old non-electrostatic air spray system?

A. Well, the major generalized advantage was the savings in paint. There were often improvements in quality and savings in labor that contributed to that, sometimes some savings in floor space.

Q. At the time that you were ready to market the No. 1

or air-type system commercially, was there any specialized equipment required for that, aside from the standard compressed air spray guns, paint booths, and exhaust systems that had been available on the market?

A. Yes.

Q. What were those items?

A. Well, the principal specialized piece of equipment was the voltage pack; the original ones we used were entirely unsafe and we worked on them at considerable hazard for awhile until we would get something designed that would be in the range of safety.

Then there was a control panel that involved some standard pieces of equipment, that were fitted together for this specific use or for specific applications, and the electrode structure, that was the main ones.

Q. Now were those items available to the market generally at that time?

A. No, no, they were not.

Q. At the time that you were getting ready to market this process, I assume it was some time immediately before 1944, that was during the period of World War II, was it not?

A. Yes.

Q. Were there voltage supplies or power packs available generally on the market which were safe for the use of this process?

A. No.

Q. What did you do about that?

A. Well, we principally worked with the General Electric Company; we also had correspondence and some contacts with Westinghouse, their X-ray Division, and some of the other X-ray companies.

We were attracted more to General Electric; they seemed more interested in the possibilities of working with us. But we seemed to bog down to some very lengthy discus-

sions. They never did really design one for us in any detail. They did say they were capable of designing one and we got the feeling, finally, that it would take them six or eight months, maybe, to design them and pernaps ten months to deliver one. And so, we finally designed one ourselves with the help of Dr. Miller from Purdue.

Q. Did you then have some of those made so that you could—

A. (Interposing.) Yes.

Q. (Continuing.) —license others to use this process?

A. We had them made here by a local manufacturer named Darling.

Q. About how many did you get from him?

A. Initially I know it was four. I think we may have ended up getting maybe six or eight in total from him.

Q. Where did you get that type of safe pack after the order by Mr. Darling had been terminated?

A. We began building them ourselves.

Q. Did you continue to do that then?

A. Yes.

Q. Where did you obtain the control panels that you speak of that were necessary for this process?

A. We made them up ourselves; the first four were rather crude pieces, using standard equipment where we could, and some bakelite plastic mounting boards.

Q. Did you supply that then to your licensees along with the power pack?

A. Yes.

Q. And the electrodes?

A. Yes, the first few units.

Q. Licensing people to use the No. 1 Process, did you supply them the compressed air spray guns that were used with it?

A. We did only where it was necessary. During the war, we had very slow delivery on those, and we put in a

small stock of them to supply urgent needs, if someone was pressed for them, and as soon as deliveries became loosened up, we had them get them directly from one of the standard suppliers.

Q. Who were some of those suppliers from which you obtained these parts?

A. DeVilbiss, Binks and Pasche.

Q. From what general sources did your licensees from the air type system obtain their paint spray booths, exhaust systems, conveyors and so forth?

A. That varied considerably. As far as spray booths are concerned, the majority of them did get them from either Binks or DeVilbiss or from R. C. Mahoney, Ross Engineering—some of the conveyor and other people also supplied spray booths as well as the spray equipment manufacturers.

Q. Well, briefly, then, you supplied none of that to these licensees, do I state that correctly?

A. That is right. I think there might be one exception, for one local organization where they had a union problem, we did supply some sheet metal booths as an assistance to the customer. But we preferred not to.

Q. Now, subsequently, then, I understand that the so-called No. 2 or airless type process was developed by your organization and was commercially marketed?

A. Yes.

Q. What was the—strike that. Were there shortcomings of the air type electrostatic process which were overcome by the airless type to some extent?

A. Yes, the air type was never close to 100 per cent efficiency by any means, and on open objects like a bicycle frame or tubular furniture or automotive steering wheels or anything like that or small objects it was still very inefficient even with the electrostatic field. It required exhaust booths, sometimes water wash booths to trap the

paint over the spray, even with the No. 1 electrostatic spray.

Q. What efforts generally speaking did your organization make toward developing something that would obviate those deficiencies?

A. We made extensive efforts and continually have extensively. In those days we worked very hard to bring up the efficiency to a point where, to close up that large area of waste that was still evident in the number one process. We kept employed several people among them some graduate engineers working on it for quite a few years.

Q. What were the advantages of the No. 2 system over the No. 1 system?

A. The principal advantage, it eliminated air and made the electrostatic field the atomizing head and precipitating force without any other conflicting force on the air stream.

Q. To what extent, if any, did it eliminate undesirable over-spray?

A. Well, I would say on very few of our No. 2 process installations do we have more than two or three percent losses in paint on overspray.

Q. Was there any improvement with respect to the capital investment required of a manufacturer in other equipment?

A. Yes, it obviated the need for water spray booths, which are the most expensive kind of booths. They can cost, some of them, as much as $3,000 a lineal foot; and also greatly reduce the amount of air makeup that is required and saves considerable in heat loss and dirt, filtration of dirt, pressurizing of these chambers. It saved considerable in the other equipment that was required to work along with our electrostatic equipment.

Q. Was there any saving in labor in comparing the two systems?

A. Well, I would say no, it would be negligible or would be erratic, the difference in the two.

Q. Would that depend—excuse me.

A. (Continuing.) The only difference would be the closer control of the No. 2 than with the No. 1 process and particularly in the area of ventilation it was not sensitive to ventilation variances as the No. 1 process was.

Q. In some applications does the No. 2 system eliminate some of the hand touch-up by the means of air spray guns which you had found necessary in certain installations of the No. 1 system?

A. I think there are no doubt, no doubt were some instances of that kind.

Q. When did you begin the general marketing or licensing of the No. 2 system?

A. In 1951.

Q. Prior to that time had you licensed anyone to use the airless or No. 2 system commercially?

A. Yes.

Q. Will you state what that occasion was?

A. Well, the first one was in 1949 to Enamel Steel and Sign Company in Chicago.

Q. Under what sort of an arrangement was that?

A. Well, we gave him all of the help we could and all the technical advice and equipment we could. He was to supply us with all the information that he gained from any developments or ideas from it. An agreement was worked out between Ed and the owner on a consulting basis for his use of the equipment prior to our being prepared to launch it on him.

Q. When you refer to "the owner", who was that?

A. Kurt Simmons.

Q. And did he use the No. 2 system commercially at his establishment in Chicago following the execution of that agreement?

A. Yes.

Q. Now, at the time you became ready to market your No. 2 system commercially, was there any specialized equipment which was necessary for the operation of that process which was not available on the market?

A. Yes.

Q. Will you state what that was?

A. Yes, we needed the voltage pack again. By that time there were some voltage packs available which were designed for electrostatic spraying. We didn't consider them safe or adequate to our standards. Then there was an atomizing bell. The rotating means, insulator mounting. Those bells or discs. As we made more and more progress into the field of the No. 2 process and got more experience with it, we found various ramifications where variations from the standard equipment helped particular applications or coating of certain objects, there became a wide range of different types of atomizers and deflecting electrodes and so forth.

Q. Was there any problem with respect to the paint supply or control of the paint flow?

A. Yes, that became very critical because of the precise nature of the No. 2 process it was essential to control that and regulate it very closely and we had to develop a means of metering or feeding the paint with a high degree of predetermination, predetermined control.

Q. Now, those items not being available on the general market, what did you do about it?

A. We had hired engineers and worked on it until we had it developed ourselves.

Q. Did you produce them or have them produce some so you could produce to licensees?

A. With what elements were available on the market, speed reducers, motor drives, and then designed and incorporated, assembled it all, tested it out ourselves. Our intent was to make nothing that was readily available.

* * * * *

Q. Now, after a contact has been established with the prospect, either through advertising or through contact of your sales representative, if that prospect shows interest in your process, what happens next?

A. Well, a salesman will no doubt give him a brochure very early in the contact or if it is an inquiry through the mail, we automatically mail them back a brochure along with an invitation to look into it, if it is a likely prospect.

Q. When you refer to a brochure that your salesman gives to a prospect or that you mail to a prospect, are you referring to the advertising brochure such as has been identified as Plaintiff's Exhibit UUUU?

A. Yes.

Q. Is that the brochure which is currently being distributed with respect to the No. 2 process to all prospects?

A. Yes.

Q. After that contact and after the prospect has been furnished with the brochure, do you obtain any information from him as to his needs if he is interested in your process?

A. Yes, we attempt to get considerable information both as to his needs and quality requirements of his product, the amount of batching he can do of different colors or different sizes, shapes and parts. The different facilities he has available as to our requirements. We try to ascertain as much as we can so we can design a unit to best meet his needs.

Q. Do you ascertain among other things what sort of

paint mileage he has been getting with his existing system and method?

A. Yes, I would say that is the principal basis of our selling him. We have to know what mileage he is getting. Very often we know. Some of our more experienced sales engineers may know more about his probable mileage than he does himself. It is a very key point of our sales effort.

Q. Now, when we speak of "mileage", will you state what you mean by that?

A. We speak of it in the trade jargon roughly as meaning paint coverage. We think in terms of how much area a gallon of paint will cover as the mileage or efficiency of the application.

Q. Is that sometimes expressed in the number of manufactured units per gallon?

A. Yes.

Q. Now, when you have that information and that data from the prospect, what is the next thing you do?

A. Then we almost in all cases invite him to send samples of paint and parts to Indianapolis to our laboratories. After we receive them we run preliminary tests on them and when it meets with our approval we ask them in for a demonstration and to work for us a day or two on those parts.

Q. You use the actual parts or product that he is manufacturing and coating in his own plant, do you?

A. Yes.

Q. Whose coating material do you use?

A. Theirs.

Q. In other words, what he sends you or something exactly like it?

A. Yes.

Q. And do you simulate in your laboratory the condi-

tions that he has in his plant or which he is contemplating?

A. As long as we can. We often change. If he has a straight-line conveyor and water-wash booth, and we try to get him to put in a disk with a loop. But we try to fit it as closely with his present or contemplated conditions as possible.

Q. What does your laboratory do in the way of arranging or designing a system for this man?

A. Well, we have a variety of facilities at our sales laboratory and there we first demonstrate to him our ability to produce an efficient job with his paint and on his parts on the recommended kind of setup that we are recommending. Then if he gives oral approval of what we have done, or after his appropriate criticism of his and modification to fit his requirement, we make up drawings outlining what would be needed in the way of altering his present facility to accommodate our requirements.

Q. Now, do you use the same essential design or system for every prospect whose parts and material are sent to your laboratory for analysis?

A. No, that might even vary widely between the same product, depending upon the circumstances, conveyor speed, film thickness and other elements.

Q. Do you find those variables result in a considerable number of designs or applications that might be needed over a period of time to satisfy all prospects?

A. Yes, there is a very considerable number of different designs.

Q. And for what particular situation or for whose needs is the system designed or arranged which you demonstrate to the prospect?

* * * * *

A. Well, for anyone—I mean an automobile body would require an entirely different treatment than a hood or

fender, bicycle frame would require considerable different treatment than a refrigertaor and each different product or each different set of circumstances dictates the particular design that we recommend and that is modified depending upon the customer's stated wishes when he sees the demonstration.

Q. That is the customer comes to your plant then to see the demonstration?

A. Yes.

Q. You demonstrate for the same system you have designed for his needs on the basis of his product and his coating material?

A. That's right.

Q. Now, what is the fact as to whether the customer is at that time obligated to pay anything for demonstration or analysis?

A. He owes nothing if he does not sign an agreement.

Q. In other words, he is free to accept or, to reject the proposal at any time?

A. Right.

Q. And if he rejects it, he would not be obligated to pay for the demonstration or analysis?

A. That is correct.

Q. Do you make any computation for him of the results that he might expect if this system were installed in his plant in accordance with the design you have developed?

A. Yes, we try to give him pretty accurate mileage figures and we can measure film thickness for him and tell him the film thickness he will receive at that mileage and show him samples of the work, the quality, the appearance we can achieve and we can also run a test to give him a pretty close idea of the maximum quantity he can get from a given set of equipment.

Q. If he then shows an interest in the system and in-

dicates that he would like to consider it further, what is the next thing that your company does?

A. Well, we give him an oral proposal, probably discuss it with him in considerable detail on the day of his visit to Indianapolis and if he shows any interest or wants one, we give him an agreement for his consideration and signature.

Q. And how is the system which you have designed for him described in the agreement that you tender to him? By what means, in other words?

A. Oh, you mean—well, it has a drawing number on it. Is that what you mean?

Q. Is the drawing prepared of that system for him?

A. Yes, the drawing attends the agreement, and the agreement is a form of a proposal, in a sense, and the drawing and the agreement generally go out together, very frequently go out together.

Q. And in the standard form agreements, is there a blank space in which the drawing number is inserted?

A. Yes.

Q. That is the same drawing you are speaking of now?

A. Yes.

Q. Mr. Ransburg, in the event any prospective licensee would want a license under the patents that the defendant owns and which are applicable to the use of the process and apparatus which he is contemplating, and would desire not to take the Ransburg equipment, but to get his equipment somewhere else, what is the policy of the defendant?

A. The policy is to give him a non-equipment license agreement.

Q. And how long has that been the defendant's policy?

A. Well we have had, only had those agreement forms printed since 1953, but it has always been our policy to let them have it without equipment, if they wanted it.

Q. Has that policy changed at any time since the defendant was organized on January 1st, 1948?

A. No.

Q. Does the performance of the airless electrostatic spray coating process depend to any degree upon the particular equipment which the licensee is using for the purpose of painting his product?

A. Yes.

Q. Will you state briefly what the relationship is between performance and equipment?

A. Well, it is a difficult thing to generalize on because it could vary considerably, but the No. 2 Process equipment is a rather precision, has precision requirements to function with maximum efficiency. I don't know the degree of efficiency. I couldn't describe in general terms the degree of efficiency that would be lost for say careless or sloppy manufacturing, but even from the standpoint of improper installation on a mounting, it could completely alter the efficiency of the operation. If there was some leakage from—through the insulator to a slight degree, it could reduce the opertaing efficiency.

Q. From the time you started marketing the No. 2 System commercially in about 1951, up to the present, have you yourself made improvements in the equipment which is now furnished to your licensees when they desire it?

A. We are continuously making those improvements today, yes.

Q. And the equipment which you furnish today, does it work better than what you used to furnish several years ago for example?

A. Oh, yes, in many cases considerably better.

Q. So you have found from your own experience there is a relationship between the equipment which the licensee uses and the results he may expect under the process?

A. Yes.

Q. Now, when a prospective licensee is contacted and your sales representative considers whether your airless type process would be of any benefit to that manufacturer, does he proceed with his efforts to interest just every manufacturer that he contacts or does he use some discrimination in that respect?

A. He is charged with a very definite responsibility of interesting people that we can make satisfied customers and I mean by that all of our salesmen are fully aware of the importance of not installing units where they won't work productively and effectively and efficiently.

Q. If the sales representative reaches the conclusion that your process will not do the type of job for a prospect that you would like to see done with your process, what does he do?

A. They will very quickly tell them they don't think it is an application for them. Very often it will be said that we cannot do the job unless they make such and such and such changes, and we have flatly refused to assume that some jobs where a customer was fairly enthusiastic about it, who was expecting too much without adequate facilities for us, or under improper conditions, because we teach our salesmen, and they quickly learn from their own experience that we have to live with these jobs. It is not a case of a quick sale like an automobile or something. When we assume a job, we assume some responsibility of making sure that it operates.

• • • • •

Q. Now, as the Vice-President in charge of sales, were you familiar over the period of the defendant's existence and prior to that time when the partnership was operating this business, with the statements of policy of the defendant which were issued in bulletin form or otherwise with respect to the availability of what we will call non-equipment license?

A. Yes.

Q. Prior to the formation of defendant's corporation on January 21, 1948, what was the policy of the Harper J. Ransburg Company, the partnership, with respect to non-equipment licenses?

A. At least in one case I know we had offered to give them our equipment without service or licenses without equipment, if they wished it.

(The defendant, for purposes of identification, handed the Reporter a certain document for marking, and which was by said Reporter marked Defendant's Exhibit 23.)

Q. (By Mr. Gilliom.) Did you have a uniform policy at that time as to anyone who might wish a license without your equipment and installation, supervision and replacement part service?

A. We didn't have any printed form or contracts.

Q. I am not speaking of that. Did you have a policy as a partnership?

A. Our policy was we would have given that, if they wanted it.

Q. I will hand you what has been identified as Defendant's Exhibit 23, which bears the caption, "Bulletin No. 55, Harper J. Ransburg Company, August 29, 1947," and ask you just to state briefly for the purposes of identification what this is.

A. This is an announcement to the salesmen to make sure they were aware of the policy to be willing to supply a license if requested to do so.

Q. Were you in charge of sales for Ransburg partnership at that time?

A. Yes.

Q. And on or about that date, did you receive or did there come into your possession in some fashion a copy of that bulletin?

A. Oh, yes.

Q. Were you familiar with that bulletin before it was issued?

A. I was familiar with the policy. I can't say specifically I read the bulletin before it was issued.

Q. Is that a document which was prepared by the partnership and issued to its sales representatives and distributors in the course of its business at about that time?

A. Yes.

Mr. Gilliom: The defendant offers in evidence Defendant's Exhibit 23.

(DEFENDANT'S EXHIBIT 23 offered in evidence by Mr. Gilliom.)

Mr. Meroni: No objection, your Honor.

The Court: Exhibit 23 is admitted and read in evidence.

(Defendant's Exhibit No. 23 is admitted and read in evidence and made a part of the record in this case, said exhibit being in the words and figures following, to-wit:)

(Here Insert.)

The Court: Has this policy described in Bulletin No. 55, Defendant's Exhibit 23, Mr. Ransburg, been changed in any respect by the partnership there, or after or during the existence of the corporation, defendant, here?

The Witness: No.

(The defendant, for purposes of identification, handed the Reporter a certain document for marking, and which was by said Reporter marked Defendant's Exhibit No. 24.)

Q. (By Mr. Gilliom.) Mr. Ransburg, I hand you what has been designated Defendant's Exhibit 24 bearing the caption, "Ransburg Electro-Coating Corp. Bulletin, August 18, 1950" and ask whether, ask you to state for purposes of identification what that is.

A. This is just another reminder to all of the salesmen

and organization in general that it was our policy to license anyone who wanted a license for that equipment.

Q. Was that distributed to all distributors and salesmen at or about the date which appears thereon?

A. Yes.

Q. And did you, yourself, see or receive a copy of it at about that time?

A. Yes.

Q. And did it express the policy of the defendant corporation at that time?

Mr. Meroni: I object to that question, your Honor, as being a matter of opinion.

The Court: Read the question.

(The preceding question was read by the Reporter.)

Mr. Meroni: It seems to me it is self-explanatory, your Honor.

The Court: Overruled. You may answer that question.

A. Yes.

Q (By Mr. Gilliom.) And this was issued in the course of the defendant's business at that time to distributors and salesmen, was it?

A. Yes.

Mr. Gilliom: Defendant offers in evidence Defendant's Exhibit 24.

(Defendant's Exhibit 24 offered in evidence by Mr. Gilliom.)

Mr. Meroni: I object to it as being a self-serving document that was only used internally and was not circulated to trade.

The Court: Overruled. Exhibit 24 is admitted and read in evidence.

(DEFENDANT'S EXHIBIT NO. 24 is admitted and read in evidence and made a part of the record in this case, said exhibit being in the words and figures following, to-wit:)

(Here Insert.)

(The defendant, for purposes of identification, handed the Reporter a certain document for marking, and which was by said Reporter marked Defendant's Exhibit No. 25.)

Q. (By Mr. Gilliom.) Mr. Ransburg, will you please refer to what has been designated Defendant's Exihibt 25, bearing the heading "Ransburg Electro-Coating Corp. Bulletin 100, May 27, 1953," and state briefly for the purposes of identification what that is...

A. This was a bulletin sent to all of the salesmen so that they would be able to approximate or estimate the initial fees for the detearing process, the No. 1 process, the No. 2 process.

* * * * * *

(The defendant, for purposes of identification, handed the Reporter a certain document for marking, and which was by said Reporter marked Defendant's Exhibit No. 26.)

Q. (By Mr. Gilliom.) Mr. Ransburg, will you refer to what has been identified as Defendant's Exhibit 26, bearing the caption "Ransburg Electro-Coating Corporation, May 27, 1953, to all distributors" and state for identification purposes what that is?

A. This is a newly arrived pricing schedule to aid the salesmen in estimated quotations for the customers in the field along with license agreements that would apply to the detearing process with and without equipment, and I guess it is the No. 1 process with and without equipment, and the No. 2 process with and without equipment.

Q. And what—excuse me, had you finished your answer?

A. Yes.

Q. Was Defendant's Exhibit 26 distributed to all of the defendant's salesmen and distributors in the course of its business at or about the date of the exhibit?

A. Yes.

Q. Did you as an officer of the defendant receive or see a copy of it at about that time?

A. Yes.

Mr. Gilliom: The defendant offers in evidence Defendant's Exhibit 26.

(Defendant's Exhibit No. 26 offered in evidence by Mr. Gilliom.)

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The Court: 26 then will be admitted and read in evidence.

(DEFENDANT'S EXHIBIT 26 is admitted and read in evidence and made a part of the record in this case, said exhibit being in the words and figures following, to-wit:)

(Here Insert.)

• • • • • •

Q. Mr. Ransburg, I hand you what has been received in evidence in this case as Plaintiff's Exhibit JJJ-2, being a pricing guide for the No. 2 spray process, dated July 15, 1953, and ask you whether at about the time that date shows you received a copy of that bulletin or were familiar with it.

A. Yes.

Q. And to whom was it issued?

A. All of our salesmen and internal sales supervisory staff.

Q. And was it issued in the course of the defendant's business?

A. Yes.

Q. And did it express the policy of the defendant at that time?

A. Yes.

(The defendant, for purposes of identification, handed the reporter a certain document for marking, and which was by said Reporter marked Defendant's Exhibit No. 27.)

Q. (By Mr. Gilliom.) Mr. Ransburg, will you please examine what has been designated Defendant's Exhibit 27, bearing the caption "Ransburg Electro-Coating Corporation, Sales Bulletin No. 130" with the date May 13, 1954, and for the purposes of identification state briefly what that is.

A. Well, this is another reminder to the salesmen that anybody that wants it can have license without equipment and giving them a price or approximate price differentials for it.

Q. To whom was it distributed?

A. To all of our field sales engineers and inside sales supervisory staff.

Q. Was that in the course of the defendant's business at that time?

A. Yes.

Q. And I note that it bears your signature. I assume you were familiar with it and knew about it?

A. Yes.

Q. And did it state the policy of the defendant at that time with regard to the subject matter which is treated therein?

A. Yes.

Mr. Gilliom: The defendant offers in evidence Defendant's Exhibit 27.

(Defendant's Exhibit 27 offered in evidence by Mr. Gilliom.)

Mr. Meroni: No objection.

The Court: 27 is admitted and read in evidence.

(DEFENDANT'S EXHIBIT 27 is admitted and read in evidence and made a part of the record in this case, said exhibit being in the words and figures following, to-wit:)

(Here Insert.)

(The defendant, for purposes of identification, handed the Reporter a certain document for marking, and which was by said Reporter marked Defendant's Exhibit 28 in 13 pages.)

Q. (By Mr. Gilliom.) Mr. Ransburg, will you please refer to what has been designated Defendant's Exhibit No. 28, bearing the caption "Ransburg Electro-Coating Corporation Sales Bulletin No. 148" dated April 4, 1955 and state briefly for purposes of identification what that is?

A. This is a bulletin conveying some new license forms to the sales organization.

Q. To whom was it distributed?

A. To all of our sales force and supervisory staff.

Q. Did that include your sales representatives in the field?

A. Yes.

Q. I notice that in the salutation, after the word "To" there is a series of initials. To whom do those various initials apply, not naming them, but are those the people and distributors to whom you just referred?

A. Yes.

Q. Does that include all of them at that time?

A. Yes, I'm sure it does.

Q. Was this Exhibit 28 issued and distributed in the course of the defendant's business at that time?

A. Yes.

Q. Did you receive a copy or see a copy of it at about the date of the exhibit?

A. Yes.

Q. And did it express the policy of the defendant at that time insofar as the subject matter indicated therein is concerned?

A. Yes.

Mr. Gilliom: The defendant offers in evidence Defendant's Exhibit 28.

(Defendant's Exhibit 28 offered in evidence by Mr. Gilliom.)

Mr. Meroni: No objection.

The Court: Admitted and read in evidence.

(DEFENDANT'S EXHIBIT 28 is admitted and read in evidence and made a part of the record in this case, said exhibit being in the words and figures following, to-wit:)

(Here Insert.)

(The defendant, for purposes of identification, handed the Reporter a certain document for marking, and which was by said Reporter marked Defendant's Exhibit No. 29 in two pages.)

Q. (By Mr. Gilliom.) Mr. Ransburg, I will hand you what has been designated Defendant's Exhibit 29 bearing the caption "Ransburg Electro-Coating Corporation, Sales Bulletin No. 171" dated June 6, 1956, and will you please state briefly for identification purposes what that is?

A. This is a bulletin to all our sales organization.

Q. And to whom or to what group of people was it issued?

A. All of our field sales engineers and inside supervisory staff.

Q. I notice it bears the signature Harold P. Ransburg. Did you yourself issue that at about the date shown thereon?

A. Yes.

Q. Was that done in the course of the defendant's business at that time?

A. Yes.

Q. Does it express the policy of the defendant at that time insofar as the subject matter therein is concerned?

A. Yes.

Mr. Gilliom: The defendant offers in evidence Defendant's Exhibit 29.

(Defendant's Exhibit No. 29 offered in evidence by Mr. Gilliom.)

Mr. Meroni: No objection.

The Court: Admitted and read in evidence.

(DEFENDANT'S EXHIBIT NO. 29 is admitted and read in evidence and made a part of the record in this case, said exhibit being in the words and figures following, to-wit:)

(Here Insert.)

Q. (By Mr. Gilliom.) Mr. Ransburg, earlier in your testimony you referred to the fact that in seeking to interest prospective licensees in your airless or No. 2 process, it was the practice of your sales organization to mail or to hand the prospect the brochure describing the process.

A. Yes.

Q. Will you please refer to what has been received in evidence as Plaintiff's Exhibit VVVVV-1 which on the second page bears the designation "Copyright 1953" and state whether that is a brochure which was distributed by the defendant for the purpose which you have indicated at about that time.

A. Yes, it was.

Q. I will hand you what has been received in evidence as Plaintiff's Exhibit UUUUU, a brochure which on the second page bears the designation "Copyright 1956-1957" and ask whether that is a sales brochure with respect to the No. 2 process which has been used in the manner that you have indicated.

A. Yes.

Q. Is this exhibit, UUUUU, still in use?

A. I think it's been reprinted a time or two but as far as I can tell it's—I don't think there were any changes made in it of any consequence.

Q. In other words, the brochure which bears that gen-

eral format and coloring is in use at the present time as far as you know?

A. Yes, that is our current style.

Q. And did Plaintiff's Exhibit UUUU succeed Plaintiff's Exhibit VVVVV-1 for that purpose?

A. Yes.

Q. Subject to the reprinting you have mentioned?

A. Yes.

* * * * *

Q. Now, will you refer please to what has been received in evidence as Plaintiff's Exhibit IIII, a blue brochure, and I will ask whether that has been distributed by your organization at any time since the year 1953.

A. No. At the time of the green one there, VVVV—no. VVVVV, we discontinued distributing the blue one.

Q. Which is Plaintiff's Exhibit IIII?

A. IIII, that is right.

Q. Mr. Ransburg, at the time that the defendant submits to a prospective licensee the proposed license agreement for the airless process, by what means is that agreement transmitted to the proposed licensee?

A. By a transmittal letter.

Q. At the time that this transmittal takes place, has the proposed agreement been executed?

A. No.

Q. What is the process which is followed with regard to the execution of that agreement?

A. We send them four copies with a transmittal letter. They sign them, return them to us, and if we approve the agreement is signed and we return two copies for their file.

Q. Does the defendant execute or sign any of those copies in any manner prior to the time that the prospective licensee has signed and returned them to you?

A. No.

Q. Now, at the time that you—strike that.

Will you please refer to what has been received in evidence as Plaintiff's Exhibit BB-1 and state whether or not that is a typical transmittal of the proposed license form for an airless typ coating system?

A. Yes, it is.

Q. And since about what time has that particular form of transmittal been used?

A. I think about the spring of '53.

Q. 1953?

A. Yes.

Q. And what is the fact as to whether that is a uniform policy at this time and has been about that date in transmitting these proposed agreements?

A. It is a uniform policy.

Q. Now, Mr. Ransburg, with respect to the policy of the defendant in regard to what we have referred to as non-equipment licenses, will you state whether at any time to your knowledge the defendant has refused to quote to any person who has requested such a quotation terms for a license under Ransburg patents without equipment being furnished by Ransburg?

A. No, we have not refused, to my knowledge.

Q. Now, what is the fact first with respect to the No. 1 or air type process license agreements into which the defendant has entered as to whether all of them have or have not included a requirement that Ransburg furnish the specified equipment for the use of the process in the system?

A. We have several who have not required the equipment in some licenses.

Q. Will you state what exceptions there are insofar as general classes are concerned first?

A. You mean what ones did not include, take a license without equipment?

Q. For the No. 1 or air type process.

A. I know there were something like six or eight of them who had our equipment installed previously and wanted additional units installed in other lines or in other booths without equipment. We did license them without equipment.

Q. I will call your attention specifically to a situation which I think has been mentioned in depositions that are already in evidence, and that is the case of the Hilgren Manufacturing Company of Huntington Park, California. Are you familiar with that transaction?

A. Yes.

* * * * *

Q. And after this license was consummated, whose specialized equipment for the air spray process was Hilgren using under the terms of their license?

A. Ashdee's.

Q. Ashdee's?

A. Yes.

Mr. Gilliom: The defendant offers in evidence Defendant's Exhibit No. 30.

(Defendant's Exhibit No. 30 offered in evidence by Mr. Gilliom.)

Mr. Meroni: No objection.

The Court: Admitted and read in evidence.

(DEFENDANT'S EXHIBIT NO. 30 is admitted and read into the evidence and made a part of the record in this case, said exhibit being in the words and figures following, to-wit:)

(Here Insert.)

* * * * *

Q. Now, have there been to your knowledge any requests for prospective licensees of the No. 2 Process for a quotation of the terms under which you would grant them

a license to use the No. 2 Process for equipment without Ransburg equipment?

A. There have been a very few.

Q. Will you state when those requests were received or approximately when, if you recall, and by whom?

A. Well, I would expect that most of them were received by John Maxwell, or do you mean by which companies requested it?

Q. Will you state those that you know about and then we will pin them down as to time as well as we can.

A. Webcor is one that asked for a quotation.

Q. Now, do you know the full name of that company?

A. Webster—I am sorry, I don't.

Q. Is that Webster Chicago Corporation, located in Chicago, Illinois?

A. Yes, it is in Chicago.

Q. Now, was that a request for specific, a specific location or was it an inquiry that was more limited than that, if you know?

A. I am not sure. It may have been more limited than that.

Q. My question a moment ago was directed to any situations that you know about where a prospective customer asked for specific quotations as to initial fees and monthly fees which would apply to No. 2 System licenses without your equipment.

A. I know that General Motors asked for one.

Q. And what happened with respect to that request?

A. We gave them a quotation and heard nothing further from it.

* * * * *

Q. (By Mr. Gilliom.) Mr. Ransburg, with respect to the specialized equipment which is furnished under your standard license agreements to licensees of the No. 2

process and system, will you state whether that equipment as a whole or as a combination has any substantial use other than for the electrostatic spray coating which is contemplated by that license?

A. No, it has not.

Q. Does the defendant, or has it at any time during its existence had a policy publicizing the initial and monthly fees which it charges for the use of the No. 2 or airless system in advertisements in trade magazines or otherwise?

A. No.

Q. Does it or has it ever published those fees applicable to these various installations in any of its sales brochures or literature?

A. No.

Q. Under what circumstances does it quote its initial and monthly fees?

A. As far as definite quotation, it has only after running the samples and tests and designing the equipment specifically required for that operation.

Q. Prior to that time, did the sales representatives in the field or in the office give any indication to a prospective licensee as to what the fees are or may be?

A. Yes, they can estimate it rather closely.

Q. On what occasions do they do that?

A. Well, on the occasion when a customer asks them for such a quotation and they have shown some real consequential interest. That would also require that prior to any quotation they would have mentally and tentatively designed the equipment roughly in their mind as to what might be involved.

Q. Mr. Ransburg, to your knowledge has anyone at any time requested that the defendant grant to him a license under any specific patent or patents exclusive of others, to use the airless or No. 2 type process in industrial coat-

ing, and I am distinguishing now between any request for a license to make and sell equipment?

A. No, I am confident they have not.

Q. Mr. Ransburg, you were a member of the partnership of Harper J. Ransburg Company in the year 1943, were you not?

A. Yes.

Q. Were you aware of the purchase by the partnership at that time of what has been referred to in these proceedings as the Pugh patent?

A. Yes.

Q. Do you recall from whom that patent was acquired?

A. From Western Electric.

Q. At the time that the patent was—prior to the time the patent was acquired and during whatever negotiations took place, were there some conversations among the partners with respect to that?

A. I am sure there was.

Q. Were you familiar as a member of the partnership with the reason and the purpose for which that acquisition was made by the partnership?

A. Yes.

Q. Will you state the purpose for which the Pugh patent was acquired as you understood it at that time and as you understand it now?

A. Well, the Pugh patent had some rather broad claims that definitely, according to our counsel, read on our system of patent spraying. We were anxious to remove any roadblocks from our path and any hazards that any customers we might get might have in it; we also had the feeling that it having never been used, we might be able to negotiate a deal on rather reasonable terms with Western Electric and authorized our attorney at that time to negotiate with them for us.

Q. Who was your attorney at that time?

A. Ralph Lockwood.

Q. When you say that you wanted to remove road-blocks, I think you used that expression, what particular activity of yours are you speaking of, that you wanted to clear the way for?

A. Electrostatic spray coating.

Q. Of what type?

A. Of the air type.

Q. And was the—strike that. Did you have any other purpose in acquiring the Pugh patent from the Western Electric Company?

A. No.

Q. Now I would like to ask you a few questions with respect to the agreement into which the Harper J. Ransburg Company ultimately entered with the Behr-Manning Corporation which has been received in evidence in this cause as Plaintiff's Exhibit UU.

The Court: Mr. Witness, I have forgotten here, and I am trying to make some notes.

Did you say that you bought the Pugh patent in order to develop the air spray system or the electrostatic system?

The Witness: In order to—I think we had—it was air electrostatic spray, what we call our No. 1 System.

The Court: The No. 1 System, you bought it at that time?

The Witness: Yes. Now in order to develop it—we had developed our system, but were advised that the Pugh patent had some claims reading on that.

Q. (By Mr. Gilliom.) When you say you were advised along that line, Mr. Ransburg, by whom do you mean?

A. Mr. Lockwood.

Mr. Gilliom: Your Honor, I am going to ask the witness some questions with respect to Plaintiff's Exhibit No.

PPPP and we have only our file copy which I would like to hand to the Court for purposes of reference.

Q. By Mr. Gilliom.) Mr. Ransburg, referring to Plaintiff's Exhibit PPPP, which has been received in evidence in this cause, will you please look at the first page of that exhibit which appears to be a letter on the letterhead of Behr-Manning Corporation, dated November 22, 1940, addressed to Mr. Harper J. Ransburg Company, and state whether you recall the partnership receiving that letter from Behr-Manning Corporation.

A. Yes, I certainly do.

Q. Following the receipt of that letter, did the partnership have any conferences with respect to the subject matter of the letter, without stating what was said?

A. Yes, we did.

Q. And did you have some contact with Behr-Manning representatives pursuant to the suggestion in their letter?

A. Yes.

Q. Now, will you refer, please in Plaintiff's Exhibit PPPP to the letter which is dated July 3, 1944, addressed to Mr. E. C. Schacht and signed Harper J. Ransburg Company with the initials HPR at the bottom and state whether you wrote that letter to Mr. Schacht?

A. Yes I wrote this letter. Yes, I wrote this letter.

Q. I note that the first letter preceding your letter to Mr. Schacht of July 3, 1944, or I should say, the last letter preceding it, is the page immediately preceding that, which is a letter dated May 20, 1941. Will you state briefly whether any negotiations were taking place between Ransburg partnership and Behr-Manning Corporation in that interim from 1941 to your letter of July 3, 1944?

A. No. I believe there were no negotiations during that period. I know there was a substantial gap in our negotiations.

Q. Now, will you please refer to Exhibit PPPP to a

telegram dated August 10, 1944, bearing the signature "Ralph G. Lockwood" and addressed to Harper J. Ransburg Company? Do you recall the partnership receiving that telegram from Mr. Lockwood?

A. Yes.

Q. And were you familiar with the substance of that telegram at or about that time?

A. Yes.

Q. Now, in the early part of 1941 and prior to the time that you wrote your letter to Mr. Schacht of July 3—I beg your pardon. Strike that question, please.

In the early part of 1944 and prior to the time that you wrote your letter to Mr. Schacht of July 3, 1944, will you state whether or not the Ransburg partnership had licensed any manufacturers to use the No. 1 air type electrostatic process?

A. Yes, we had licensed several.

Q. Did those licenses contain provisions indemnifying the licensee against patent infringement?

A. The original ones contained full indemnification against patent infringement.

Q. That was true as to those entered in the year 1944 to which you refer?

A. That is right.

Q. At the time that you were negotiating with Behr-Manning Corporation in the transaction which ultimately resulted in the execution of Plaintiff's Exhibit UU, the agreement with that corporation, was Behr-Manning Corporation engaged in any way in manufacturing or marketing electrostatic spray painting equipment or systems?

A. No.

Q. Was the Ransburg partnership, Harper J. Ransburg Company, engaged in any way in manufacturing abrasive or flock coated articles?

A. No.

Q. I think you stated that the partners had conferences and conversations with respect to this original Behr-Manning letter which was received in 1940 and were you as partners informed among yourself as to your concerns with respect to the Behr-Manning situation and the negotiations which ultimately resulted in the execution of Plaintiff's Exhibit UU?

A. Were we what?

The Court: Read the question.

(The preceding question was read by the Reporter.)

A. From the very outset we were very concerned after receiving this first letter from Mr. Schacht that I interpreted, I believe we all interpreted, as somewhat threatening and certainly threatening the entire position we were all developing in electrostatic painting field.

• • • • •

Q. (By Mr. Gilliom) Did the partners prior to the execution of the Behr-Manning agreement, which is Plaintiff's Exhibit UU, determine among themselves that they would enter into that agreement for the purpose of eliminating whatever concern you have discussed?

• • • • •

A. Yes, we did.

Q. (By Mr. Gilliom.) Will you state what the purpose of the Harper J. Ransburg Company was in negotiating and entering into Plaintiff's Exhibit UU, the agreement with the Behr-Manning Corporation?

• • • • •

A. We wanted to remove this roadblock which was almost synonymous to—obstacle which was almost synonymous to Pugh in that they owned a patent which Pugh's issued patent showed it had been disclaimed, one or two claims, and it was that obstacle we wanted to overcome to our own marketing of our process, plus the saving of any hazard of litigation or trouble to our prospective users.

Q. You made reference to one patent with respect to which I think you said a couple of claims were disclaimed. Do you remember the name of the patent?

A. Yes, that was the Smyser Patent.

Q. Did your corporation, did your partnership have any other purpose than the one which you have stated in negotiating and entering into the Behr-Manning agreement?

A. No.

Q. Mr. Ransburg, do you recall the defendant Ransburg Electro-Coating Corporation entering into an agreement in 1948 with Research Corporation?

A. I recall there was one, yes.

Q. And do you recall the circumstances which led up to the execution of that agreement?

A. I think Ed would be better qualified to give the details. I recall a few generalities.

Q. Just state what you recall about it and if that is incomplete, we can ask your brother about it.

A. I recall that there was one patent listed by Behr-Manning in the cross license agreement which they thought at the time they had rights under from the Research Corporation. It turned out later they did not have those rights under this particular patent and it was an inadvertence on their part we relied upon and we had given on an occasion or two a list of the patents that we had rights under to customers of ours who were relying upon license rights under a patent we had no license rights under, through the inadvertence of Behr-Manning.

Q. And did you then enter into negotiations with Research Corporation for the purpose of acquiring those rights?

A. That is right.

Q. Did the corporation at that time have any other purpose in entering into the agreement with Research Corporation?

A. No. We felt rather heavily compromised at that stage in having purported to customers that we had license rights under a patent that we found out later we didn't have license rights, too, so we were earnestly endeavoring to acquire those rights, and that was the major purpose. We said we had rights and found out later we didn't have.

Q. You used the term "major purpose". Was there any other purpose that you know of?

A. I don't think so.

Q. I would like to ask you a few questions, Mr. Ransburg, with respect to the use of your airless and air type electrostatic spray painting systems and the relationship of that use to other painting methods which are available. First of all, is there any article that you know of in your experience with electrostatic spray painting systems which can be coated by means of the airless or No. 2 System which cannot be coated by some other means?

A. I know of no such article.

Q. What are some of the other methods by which those articles can be coated and are coated industrially?

A. Most common ones are the conventional hand air spray, automatic air spray, flow coating and dipping, roller coating—

Q. (Interposing.) Can they also be coated by the air type electrostatic air spray system?

A. Yes.

Q. What is the difference essentially between coating with your airless or No. 2 System and any other system you have mentioned?

A. The principal general difference is the difference in painting efficiency, paint mileage.

Q. That is reflected in what, so far as the manufacturer is concerned?

A. The cost of paint used.

Q. Is there any other substantial difference between the use of the No. 2 System and these other systems?

A. If substantial means a great difference or large difference, I would say no, in a general way.

Q. Now, when you are attempting to market your airless or No 2 System to prospective customers, what is the fact as to whether your sales representatives and your distributors compete with these other methods of industrial painting?

A. We have always considered that we compete with any other method of painting. It is our problem to convince someone we have a better method of doing it than several other ways that they can accomplish the same end.

Q. I take it from the number of licenses you have negotiated, as is shown by the exhibits which have been received in this case, in many instances your representatives are successful in negotiating agreements for the No. 2 System?

A. Right.

Q. Are there any situations in which your representatives are not successful in doing that and lose out to competing forms of industrial painting or coating?

A. Yes.

Q. What type of methods do they lose out to on these occasions?

A. Well, I can think of one case that used flow coating instead of our process that we were recommending. There have been several that have used what we call the one-half system which is another airless electrostatic—

Q. (Interposing.) Do you mean—

A. (Interposing.) I mean air electrostatic painting system.

Q. Marketed by—

A. (Interposing.) There are—

Q. (Interposing.) Other firms than yourself, than yours?

A. Yes. Those are the principal ones. Of course, we sometimes lose out to an ordinary conventional air spray gun for various reasons.

Q. Now, do any other persons who have taken licenses for your airless or No. 2 System have in their plants other types of industrial coating as well as your own?

A. Yes, there are. A great number would have other types of industrial painting equipment. Most of them would have in fact.

Q. What kind of equipment do you mean?

A. Most of them would have a dip tank or many of them would have a dip tank doing some small part, or flow coating system putting on a prime coat or air guns. There are several that have other electrostatic units as well as ours in the same plant.

Q. You mean of the air type furnished by other suppliers than yours?

A. Yes.

Q. Now, are there any instances in which users of your electrostatic coating systems have terminated their agreements with you and have retained or taken on competing types of systems?

A. Yes, there are some.

Q. And in that instance, what type of system has the manufacturer substituted for yours that you know of?

A. The air type.

Q. Electrostatic?

A. Air type electrostatic, yes.

Q. And, of course, I assume that in those cases that equipment is furnished by someone other than Ransburg?

A. Yes.

Cross-Examination by Mr. Meroni.

Q. Mr. Ransburg, when did you say you or your company or partnership first marketed or licensed or leased a No. 1 air type electrostatic system?

A. It was early in 1944.

Q. By that time you had licked the problem of a satisfactory power pack, from your standpoint?

A. Yes.

Q. And, as I understand your testimony, in 1944, others were then manufacturing packs that could be used, too?

A. Not to my knowledge.

Q. Well, you did obtain some from Darling, did you not?

A. Oh, yes.

Q. That is an independent company, isn't it?

A. Yes, it was the local company that built the packs to our design.

Q. Well, did they sell those packs to other people, too?

A. No.

Q. They sold them only to you?

A. The packs that we designed?

Q. Yes.

A. Yes.

Q. Did they make and sell any power packs that could have been used in an electrostatic system as far as you know?

A. As far as I know, not with complete safety.

Q. Well, that is a matter of degree. They could have been used with less safety, is that it?

A. Yes, right.

Q. What do you mean by "safety"?

A. Well, I mean both personnel, safety to personnel and safety from fire hazard.

Q. Can you explain that more in detail from the standpoint of what is involved in the pack in that regard?

A. Yes, the higher the available current, the more lethal or the more possibility of a lethal shock becomes, and the higher the available current from a short on the high voltage circuit, the more heat is generated and the more likelihood of a fire when it is around combustible materials.

Q. Then you wanted a power pack that would give you the high enough voltage but with a minimum amount of current?

A. Right.

Q. Now at the time that you came out with this No. 1 System in the forepart of 1944 had you licked the problem of a feed for paint?

A. To a satisfactory degree for the moment, yes.

Q. Had you also licked the problem of a regulator?

A. Well, that is a matter of degree, and I would say we are still attempting to improve it.

Q. But you had one that you considered sufficiently good that you commercialized?

A. It was commercially usable, yes.

Q. So that you would you say that before September 29, 1944 which, incidentally, is the filing date of the Starkey patent here in suit, you had already available a satisfactory power pack and a satisfactory feed device?

A. Of course, when you say it was satisfactory, it was satisfactory to those customers to whom we sold it, naturally.

Q. By "satisfactory" I mean one that was good enough for you to sell to customers?

A. Yes.

Q. You also by that time had a pack that was good enough to license or lease to cu mers for your detearing process, did you not?

A. Yes.

Q. When did you first notice others coming into the field with an air type electrostatic coating system?

A. Well, I think it was probably around—somewhere around 1950-'51.

Q. Was it after the Pugh Patent expired?

A. I believe the Pugh Patent expired in '48 or '49.

Q. So it was after that?

A. Yes, I think so.

Q. And do you recall whether it was after the expiration of the Smyser Patent?

A. Yes, I believe the Smyser Patent expired before the Pugh, did it not?

Q. We can check in a minute. I think that is correct.

* * * * *

Q. Were you aware of the fact at the time of the initiation of this correspondence with Behr-Manning that they were already well established and entrenched in the electrostatic field with particular regard to sandpaper and this fabric that they are referring to?

A. I knew they had done some work in that field, yes.

* * * * *

Q. Did you ever become familiar with the development work that they had done in the paint field?

A. Yes.

Q. Well, tell us what it was.

A. Up to the time of the writing of this letter in 1940, it was nothing.

Q. Well, what did you learn about it, if it was later?

A. Well, in our first meeting with Elmer Schacht and two other gentlemen from Behr-Manning who came out to Chicago, I just flatly asked them if they had worked with electrostatic precipitation of liquids and Elmer Schacht admitted they had not. He was their principal inventor, I believe.

* * * * *

Q. Well, then they never did apprise you of the fact they had been doing any development work in the liquid coating field?

A. They told us in '40 or '41 in our first meeting they had not done any in the liquid coating field.

Q. Did they tell you at a later date they had?

A. I know, yes, they did afterwards.

Q. When they did what did they tell you?

A. Well, they either borrowed or rented some equipment from us. I think we may have loaned it to them for work in liquid coating. I don't know what they did with it. Some of our people may have worked with them on it.

• • • • •

Q. Were they under a license arrangement with you at that time or was it just a loan or sale, or what?

A. Yes, after our license arrangement.

Q. I beg your pardon?

A. That was after our license arrangement.

• • • • •

Q. Now, I hand you what purports to be a pricing guide for your No. 2 System dated July 15, 1953, marked JJJ-2. Is this the first pricing guide that you sent out in connection with the No. 2 spray process wherein you spelled out to your distributors the difference in fees where equipment was supplied and where equipment was not to be supplied?

A. I recall that there was one earlier than July of 1953.

Q. We haven't seen any here. You say there was one earlier than that where you divided it in that fashion?

A. Not in that fashion because the earlier one, as I recall, related to the detearing process, and the No. 1 process.

Q. This is limited to the No. 2 process? As far as the No. 2 process, I believe this is the first bulletin you sent out? Am I correct in that?

A. I believe that is correct.

Q. Now, in this typical example here, if the customer wanted equipment he would pay an initial fee of $10,000 and a basic monthly fee of $200, monthly fee, 25 per cent

of the cost of coating material used, is that correct, in that typical example?

A. Yes, in the case of our supplying the equipment.

Q. Now in that same example where you didn't supply the equipment, the customer would still have to pay a basic initial fee of $4,000 for the license, and a basic monthly fee of $140, is that correct?

A. That is correct.

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Q. Do you recall if you had the licenses with Behr-Manning or executed them, having any correspondence with them at all?

A. I think we have received some correspondence, yes.

Q. Well, you had some in connection with that patent under which Behr-Manning inadvertently gave you rights and you had to go to Research Corporation to get the rights?

A. Yes, I am sure we had some correspondence on that.

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PLAINTIFF'S EXHIBIT LLLLL.

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BURKE BERNARD ROCHE, called as a witness herein on behalf of the defendant, having been first duly sworn, was examined and testified as follows:

Direct Examination by Mr. Hume.

Q. Will you give your full name, Mr. Roche?

A. Burke Bernard Roche.

Q. Where do you reside, sir?

A. Oak Park, Illinois; 333 South Oak Park Avenue, Oak Park, Illinois.

Q. And your age?

A. 43.

Q. What is your occupation, sir?

A. The president of the Binks Manufacturing Company.

Q. How long have you been president of the Binks Manufacturing Company?

A. Since April, 1949.

Q. What is the business of the Binks Manufacturing Company?

A. The Binks Manufacturing Company is engaged in the manufacture of spray painting equipment in spray finishing systems.

Q. How long have you been employed by the Binks Manufacturing Company?

A. Since 1939.

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Q. Let me start over again.

Instead of speaking of divisions, let's find out first what products are made by the company. We will just speak about products. Can you give me some idea of the various products that are made?

A. Yes. I could start off by saying that we basically have two lines of equipment in so far as our spray painting equipment is concerned, which is our principal business there, principal products—we have a few side lines which I can enumerate after I am through with the spray painting products.

First of all, we have our standard equipment, our catalog line, and that includes numerous items, the most important of which are paint spray guns, oil and water extractors, pressure tanks, all sizes of cups, containers for paint; rubber hose, both material and air hoe; hose connections. We have a line of material handling pumps, air compressors, all types and sizes.

I would say those were the principal items in our stand-

ard equipment line. There are many more, but those are the main ones.

Q. That is the standard equipment line or the so-called catalog line, you say?

A. Yes.

Q. You first said that you have two lines of equipment. Is the standard equipment one of those two lines?

A. That is right.

Q. What is the other of those two lines?

A. The other one is the industrial line.

Q. The industrial line?

A. Yes.

Q. This is to be understood in contradistinction to your standard equipment line?

A. Yes. I wouldn't say that they don't overlap, but if I am going to make a distinction, I would have to do it in this way. They frequently overlap, of course. But the industrial line consists of spray booths, water cooling towers, paint circulating systems, exhaust systems, air supply systems, and sometimes, I would say, complete finishing systems. We have to collaborate with other firms to furnish other equipment which we do not manufacture, which would include such things as ovens and bonderizers, which are not of our manufacture, but some customers today demand a so-called turnkey job. You will have one contract, you might say, to furnish all of the equipment.

Q. Just so I get the benefit of what you are telling us, you used the expression "turnkey job." What do you mean by that?

A. A package job, you might say, where one contractor, one firm, would furnish everything that would be required to integrate a paint finishing system.

Q. That is a kind of a job that you might take in your regular course of business?

A. We might take, yes. We don't usually take them, but occasionally we have on request of a customer.

Q. In that event, you would do what in order to get that equipment which you do not actually make?

A. You might say we would act as the prime contractor on the job, and we would have suppliers who would furnish the equipment that we do not manufacture.

Q. Are there any other major items that come under the industrial line, other than the ones you have named?

A. I believe I have mentioned the principal ones. There is one more that I didn't mention that we also make, that is, automatic paint machines.

Q. In order to get a little better idea of this, I am going to run through some of these items and ask you how these pieces of equipment are used, in what kind of operations and what kind of customers you sell.

You first said that under the heading of standard equipment you make paint spraying equipment. What is included in that?

A. Under the items listed in the standard equipment?

Q. Yes.

A. Well, almost everything I mentioned as far as the paint spray equipment is concerned, I mean, if you want a list of what would be essential for paint spraying, all those items could be classified as paint spray equipment because they are for the use of paint spraying.

Actually what would be required, if we decided to spray anywhere in the factory, you would need a spray gun with both air and material hose, and of course you would need a paint container, either the pressure tank or the cup which I mentioned, and usually you also need a regulator, air regulator to regulate the flow of air and the air pressure.

Q. These items in the spray paint section of your business include air guns, is that right?

A. We have some air guns in the line—just a moment—what do you mean by air guns?

Q. I mean compressed air paint spraying guns. That is one of your items, isn't it?

A. Oh, yes. When you said air guns, I thought you were talking about a gun for spraying air. We also have blow guns, as we call them.

Q. But these systems that you have been testifying about which come under your standard equipment line are paint spraying systems which include compressed air paint spraying guns?

A. Well, yes. The paint is atomized by means of compressed air.

Q. Is that characteristic of all of the systems in the painting field that Binks has been selling in the past?

A. Yes, it is.

Q. What are oil and water extractors used for?

A. Oil and water extractors, usually the air line gets some impurities or foreign matter, and that has to be extracted so that you will get a supply of clean air to the gun. So that is what it actually does, it extracts the impurities and foreign matter from the air stream.

Q. Here again, this is a part of what we might call a compressed air paint spraying system?

A. That is right, as applied to the equipment that you are mentioning now.

Q. Yes. Are oil and water extractors used for anything other than paint spraying systems?

A. Well, it is possible that they are, but that is their function. That is why we have them. That is their function. As far as the other uses are concerned, I am not acquainted with that.

Q. That is what you have it in your line for and that is what you sell it for?

A. That is right.

Q. How about your pressure tanks? Is that also an item of the compressed air spray paint system?

A. Yes, it is.

Q. All of these other items that you have mentioned under the heading of your standard equipment line are all parts of the compressed air paint spray system?

A. That is right, as applied to the standard equipment that we are talking about at the present time.

Q. So that we might say under the standard equipment line that that entire line of products are all sold as a part of systems for spray painting with compressed air guns?

A. The standard equipment line that I have mentioned, it is all used compressed air is essential to its use.

Q. All of those elements or parts or pieces of equipment are part of that kind of a system, namely, a compressed air spray painting system?

A. Yes, they are all components.

Q. Under your industrial line, what are your spray booths used for, if you will tell us, please?

A. The spray booths are used to exhaust the paint fumes from the factory, or wherever they are located. In other words, the spraying has to be done in a localized area so the use, that is, the safety engineers require that spraying be done in a closed area and that the paint fumes be exhausted so that the noxious fumes won't get out into the rest of the plant and be a health hazard, and so forth.

Q. They provide a housing in which the painting operation is conducted?

A. That is it.

Q. Do they provide a housing for any other operation other than painting?

A. No, they are primarily for painting.

Q. What is the cooling tower used for? Water cooling tower, I think you said.

A. Water cooling towers are used in conjunction with air conditioning installations, refrigeration installations, primarily for the purpose of conserving water because the water constantly recirculates so you don't have to waste the city supply.

Q. Does this item, namely, water cooling towers, have anything to do with painting systems?

A. It does not.

Q. Paint circulating systems, I guess, are confined in their use to painting systems of the type you sell, namely, compressed air gun systems, right?

A. Yes, that is right.

Q. What are exhaust systems?

A. Well, the spray booths, there has to be a movement of air within a spray booth in order to carry away the paint fumes, and consequently in the larger plants that would take so much of the heated air away from a plant that very often it is necessary for a plant to spend a considerable sum of money in providing an air makeup or supply system. Of course, if you provide a special air makeup or supply system, you also have to exhaust it. In some of the larger plants where the booths are large, that can get very complicated, and it requires both a large air makeup and air exhaust system to handle the flow of air in a spray booth.

Q. And that is what your air supply systems are used for also, I take it?

A. That is right.

Q. So that the exhaust systems and the air supply systems which you mentioned are really a part of the spray booth mechanisms that you sell, is that right?

A. Yes, they are, with the larger booths usually.

Q. Are they used for anything other than spray booths for painting systems? Do you sell them for any other usage?

A. We primarily use them for spray painting. There are a few related uses, I think sometimes for soldering booths in automotive plants.

Q. Would it be fair to say that is a minor part?

A. I think that would be minor.

Q. I was interested in your reference to this turn-key method of selling or package selling. What is your normal method of selling equipment?

A. Our normal method is merely to sell our own items that we manufacture or assemble ourselves.

Q. What would be a typical method of doing business for a company that wanted to install a compressed air spray painting system? Would you be in the market for that kind of an order?

A. I certainly would be.

Q. What would be a typical operation, what would you sell and what would you supply in conjunction with that kind of a customer?

A. Are you talking about an industrial customer now?

Q. I was just trying to get some idea of the extent of your participation in supplying equipment to a customer. For instance, we will assume we had a customer who wanted to install a compressed air spray painting system. Would you be in the market to supply him, and what would you quote to him, and what would be the typical method of operating with a customer of that kind?

A. Well, it could happen in many different ways. The customer could write in, first of all, and say he needs some paint spray equipment, and we would send a salesman out to determine his requirements. Then after the salesman determines his requirements, it depends on what the man is spraying, of course, then we would submit a quota-

tion with our catalog prices, unless some special items were involved. It would depend on what the man needed, the customer needed.

Q. In a typical operation of that kind, a typical installation, say, for painting some household object, ordinarily would a spray booth be needed as an item in the system?

A. You mean as far as a hobby around the house?

Q. If your customer was going to install a system, would a typical system for using your compressed air equipment require a booth, for instance?

A. That might depend on where the customer was located, depend on the state laws, and all, regulating the use of spray equipment. Some states have industrial commissions, and they are very strict. I mean, almost any commercial establishment would have to have a spray booth.

There are various types of spray booths, too, like the dry type or water washed type. The dry types are less expensive. Some states, it is getting more rigid and strict all the time. As far as using it, if you were going to buy a spray gun for home use or farm use, a spray booth rarely is bought because a lot of times you would be doing your spraying outdoors and you wouldn't be getting in anybody else's way.

Most commercial establishments and industrial establishments have spray booths.

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Q. Do you know when your company first got into the paint spray business?

A. How far back would you like me to go?

Q. I would just like to get some idea of the age of your company in this spray paint field, something of the stature and background of your company in that field.

A. Yes.

Q. When did your company really get into that business, the spray paint field?

A. Briefly, if I could just give you a brief resume of it—

Q. See, Mr. Roche, this is all known to you but we are on the outside looking in. We don't know your company like you do and we are trying to get an idea of what the history of this company has been.

A. Well, the Binks Manufacturing Company is a pioneer in the spray equipment industry. Originally it started, in 1892, as the Star Brass Works and I know that in 1893 the buildings down at the Columbian Exposition in the first World's Fair in Chicago were whitewashed by means of the spray gun that was made by the Star Brass Works. They operated until around 1914 and at that time, I believe, if my memory serves me right, it was changed to the Binks Spraying Equipment Company. That might not be the exact name, but shortly after that, the Binks —well, at that time I presume the Binks family got into the business. They were a family that lived here in Chicago out at Oak Park. They operated the business until 1929, at which time the company was reorganized and at that time it was called—at the time of this reorganization, it was called the Binks Manufacturing Company.

You might put it this way: That the present management, because I represent a continuation of that name, has run the company since that time.

Q. Now all during that time, you might say throughout the entire history of the company, they were selling these compressed air paint spray guns, were they not?

A. Yes, as far as I know. As least to my knowledge, so far as I could go back with it, yes.

Q. And didn't they also, let us say, from 1929 then,

sell all the equipment that went with the gun to constitute a complete system?

A. Basically, yes.

Q. And that would include spray booths, for instance?

A. So far as whether we had then actually sold spray booths in 1929, I couldn't give you an accurate answer, but I do know that as early as in the '30's that the company started to sell spray booths. It is possible before that they did too.

Q. And how about the other equipment that was used, such as hoses and connections, that was all a part of the—

A. That was part of the standard equipment line.

Q. —of your line at that time, wasn't it?

A. That is right.

Q. And pressure tanks?

A. Yes.

Q. These oil and water extractors, they were sold way back in the early history of the company, weren't they?

A. Well, if you just go back to 1929. Before 1929. I would know very little about that.

Q. But they were sold as early as 1929?

A. Yes.

Q. And the pumps that went with those systems?

A. Well, now if you are talking about the material handling pumps that I believe I mentioned, that line is relatively new. We have only had that in the line for about two years. That is a new product.

Q. Well, all these items that you have enumerated here as being a part of your standard equipment spray painting line, those items, to the extent that they were used in spray painting or are used in spray painting, were sold by the Binks Company in its back history?

A. That is right. There were changes in its equipment, but the line was standard. They were sold as far back as I remember.

Q. We are justified in saying, then, the system with all these various component parts as it exists today, except for modifications and improvements, was about the same as the system for painting back in 1929 or in the early '30's, isn't that right, so far as having a large number of different parts is concerned, like booths and hoses?

A. Basically, I think that would be correct.

Q. When did your company, so far as you know, first become acquainted with the techniques of electrostatic painting?

A. As far as I can remember, we first became interested in electrostatic—in the electrostatic method, either around 1941 or 1942.

Q. Well, I don't believe that quite answers my question, Mr. Roche. You said that is when you first became interested. When did you first learn of the existence of any system that would utilize electrostatics in depositing paint? When did that first come to your knowledge or the knowledge of the officials of the company, in so far as you know?

A. It was around 1941. At that time—well, I don't know what the Ransburg Company was called at that time, whether it was Harper J. Ransburg or not, but they had a demonstration and we were invited to attend and a group of people from the Binks Manufacturing Company went down to see it.

Q. Well, can you relate the circumstances of that and how it came about?

A. That is actually as much as I know about it and my knowledge of it is rather sketchy. That was the first time that at least I, personally, had any knowledge of it and, as I remember, the Ransburg Company at that time invited

a group of Binks' people to go down and see a demonstration of the electrostatic process and a group of people went down from Binks and I also went.

Q. You were one of the parties that went down to Indianapolis?

A. Yes, sir.

Q. Then did I understand you to say that so far as that, the initial idea of employing electrostatics and depositing paint, was derived by the Binks Company from the Ransburg Company?

A. As far as I know.

Q. Do you know, what was the occasion of Ransburg extending the invitation to the Binks Company to come to Indianapolis for the demonstration? Do you know what the occasion was?

A. All I know is that we received the invitation to go and I couldn't tell you why.

Q. Who went down on that trip, so far as you know?

A. You see, of course, at that time I wasn't in an executive capacity of the company.

Q. What was your capacity at that time?

A. I was working in the sales department, an inside job.

Q. In the sales department?

A. Yes.

Q. In the selling of what items?

A. In the standard equipment.

Q. Who else went down, do you know?

A. I know that Mr. Harker who is head of our sheet and metal engineering and Mr. Harrison went, who is head of our automatic spraying machine division. I was trying to recall who went with us. It was so long ago, but I know that those two gentlemen went. That would be Mr. Harker and Mr. Harrison.

Q. Was there anyone there who is in the research department and represented engineering?

A. Mr. Harker is an engineer in our sheet metal division. I can't recall whether the other engineers were there or not. I remember those people because I went down in the car with them.

Q. What happened when you got down there? Did you see a demonstration?

A. Yes, we did.

Q. What was the demonstration you saw?

A. Well, it was a demonstration using—actually where they had a spray gun, conventional type spray gun.

Q. Employing compressed air?

A. Employing compressed air. Then they had an electro-static field, and as the particles were atomized, the paint particles left the gun, they were attracted to the ware. It seemed to have a magnetic attraction for the paint particles and the ware apparently was grounded.

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Q. Can you tell us when you or anyone in your company, so far as your own knowledge is concerned, became aware for the first time of an electrostatic coating system or process for airless atomizing of paint as distinguished from the compressed air atomization to which you have referred?

A. For the airless method?

Q. Yes.

A. You mean when I first heard about it?

Q. Yes, when you first learned that there was such a thing on the face of the earth or anyone in your company first learned that, so far as you know.

A. Well, now, it seems to me that we first heard about it around, oh, 1950 or 1951.

Now, I do know this: That I recall seeing ads when the Ransburg Company first started to sell it and I recall

seeing ads in the trade magazines about it. It certainly was well known in the trade.

Now, also, of course I recall the fact that our engineers spoke to me about it. Some of them had heard about it. Some of our branches had heard of it and possibly might have seen an installation, so it became generally known right around that time.

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Q. Well, is it correct to say then that you didn't know anything about an airless atomization coating system using an electrostatic field until you saw one of Ransburg's commercial units in operation?

A. Oh, I knew about it prior to that time, prior to that.

Q. You knew about it prior to the time you had seen any commercial installation of Ransburg, is that right?

A. Yes.

Q. Well, when you first heard about it, you heard about it in conjunction with Ransburg's development rather than someone else's development, isn't that correct?

A. Well, yes.

Q. So, the work done by Ransburg, that first brought to you the knowledge that this type of airless system was a possible system; that is correct, isn't it?

A. That is correct.

Q. Now, do you have any knowledge of any other sources of supply of equipment for electrostatic painting other than that supplied by Ransburg?

A. Yes, I do. There are two companies here located in the Chicago region. One of them is the Ashdee Products Company. I believe I have the name right. I am not sure about the spelling, but, anyway, it is the Ashdee Company.

Another one is the Staticote, Incorporated. I am not sure about the spelling but I think it is S-t-a-t-i-c-o-t-e. It is the Staticote, Incorporated, I believe. They sell the

electrostatic method, but it is the air method of using an electrostatic field.

Q. The equipment sold by those two companies you have named involves the use of a gun employing compressed air; that is correct, isn't it?

A. I know that it certainly did in the beginning. I mean, there are some of our people that are more acquainted with it than I am. So far as I know, it still is.

Q. Do you know of any other companies besides the two you have named and, omitting for the purpose of your answer, Ransburg Company, who sell any equipment for electrostatic coating?

A. Yes. There is one in the east that I know of. I can't think of the name of it. It is located in New Jersey. I think they call it the Ionic method but they have had demonstrations. I go to a number of business shows and I have seen their demonstrations there too.

Q. Did that Ionic type company that you have referred to have equipment employing a compressed air gun also?

A. They have a rather unusual arrangement but I believe they do use the compressed air, although their method is somewhat different from Ashdee and Staticote. Their electrostatic field is set up differently.

Q. Let us take Ashdee. I want to find out about Ashdee and I want to know what you know about them.

When did they come on the market? Do you know that?

A. My recollection is that it was around 1950.

Q. When did you first learn of Ashdee?

A. Shortly thereafter.

Q. After they came on the market?

A. Yes.

Q. And you think that was in 1950?

A. I think it is. I mean, it might have been prior to that.

Q. Did you ever see an Ashdee system operating?

A. I don't actually believe that I did. Some of our other people have.

Q. Do you know how they set up their electrostatic field, for instance?

A. Well, I know that they have the power pack and the electrostatic field, and it is just my impression that they use compressed air.

Q. Is it fair to say that you have no firsthand knowledge of the technical aspects of Ashdee, no firsthand knowledge?

A. I don't have any firsthand knowledge.

Q. Everything you know about it somebody told you?

A. Well, I have talked to the Ashdee people.

Q. Well, somebody told you everything about everything that you know about the technical operations of an Ashdee system, is that right?

A. That is right. Our engineers in the staff at Chicago have told me about it.

Q. Now this other system here in Chicago, which one was that?

A. Staticote.

Q. Have you any firsthand knowledge about the construction and operation of that type of system?

A. No, I don't know about the technical features of it.

Q. When did that first come on the market?

A. I believe that was an offshoot of Ashdee, I would say. My guess would be about two years later, maybe 1953.

Q. When did you first learn there was such a system?

A. You mean the Staticote?

Q. Yes.

A. I knew some of the Staticote people used to work for Ashdee, and they both have been in our plant. I know some of the gentlemen personally at both places.

Q. Who do you know?

A. Well, now, which one?

Q. Who do you know at Ashdee, for instance?

A. Well, now, Ashdee, I knew the former president there. His name was Valiere.

Q. Who else?

A. I know the gentlemen. Now actually whether I can mention their names and pronounce them correctly, I don't know.

Mr. Turngren, I think, that worked for Ashdee, and I think both Mr. Turngren and Mr. Gilbert formerly worked for Ashdee and now they both work for Staticote.

Q. You say you know these gentlemen personally?

A. I have an acquaintance with them. They come in the plant once in a while, and I have seen them at times.

Q. How about the Ionic system that you referred to as produced down East? Do you have any first-hand knowledge of how it is constructed and how it operates?

A. Well, exactly what do you mean? I have seen it operate.

Q. You have seen it operate?

A. They have had demonstrations at shows.

Q. And you have seen it operate. How did it operate? It had a gun using compressed air, you have told us, and how was the electrostatic field established?

A. Well, they have the electrostatic field in back of the gun and they only use, you might say, they used a cut spray gun. They only use half a spray gun. They use the nozzle section. How much, whether electrostatic atomization comes into it, I couldn't answer.

Q. Does it have separate electrodes for establishing the electrostatic field?

A. I don't know.

Q. I don't know whether I asked you whether you had ever seen a Staticote system operating.

A. No, I haven't.

Q. So all you know about a Staticote system you derived from somebody telling you about it?

A. That is right.

Q. And that is true of Ashdee and it is true of Staticote, but it is not true of the so-called Ionic system?

A. Only because I happened to see that at a show, yes.

Q. You happened to see that, but is it true that you can't tell us any of the details of operation and construction more than you have told us here?

A. Well, I think that is true. I am not too well acquainted with the technical phases of it.

Q. Is there anyone else that you know of who supplies equipment for electrostatic coating besides the three companies you have named and exclusive of Ransburg?

A. I can't think of any others at the moment.

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Q. What was the first thing that was done in your company toward creating for your own benefit an electrostatic coating system? Just go right back to the beginning and tell us the first thing that occurred leading toward the establishment or creation of an electrostatic coating system as a Binks item.

A. Yes. Well, I will start out by saying that we became interested in electrostatic many years ago.

Q. When did you first become interested?

A. Well, especially, I would say that it was after the war period particularly, and after that aftermath period was over following the war. We didn't have too much time during the war because so much of our production was taken up by the government to give it too much thought, and then following the war there were so many materials that were scarce and all. It was rather difficult to get the materials you wanted for your catalog items.

Q. Was it after Ransburg was on the market with an electrostatic coating system?

A. Well, yes, after they came out with it, you know, the air—

Q. The compressed air type was on the market, and it was after the advent or introduction of that system on the market by Ransburg that Binks first became interested in electrostatic coating systems, is that right?

A. That is right.

Q. How much after Ransburg was on the market did your interest have its beginning?

A. Well, we had, as I said before, we at first thought about coming out with the, you might say, the air method, using compressed air. We knew that patentwise, of course, there were some difficulties there because Ransburg had accumulated so many patents, but after Ashdee and Staticote got into the business, why, they seemed to be able to get around the patent difficulties. There was some question about the angle at which you sprayed which more or less determined whether the patent was in violation or not.

Of course, we had talked to both Ashdee and Staticote, and then we decided that the best thing for us to do—we could see that Ransburg was selling these installations, and actually there wasn't any reason why, in our minds, unless there was some reason to prevent us, why, after all it is a spraying process, why the Binks Manufacturing Company shouldn't get into the business too.

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Q. Did you acquire from Ashdee any encouragement or information as to your ability to enter the field as they had done with the avoidance of patents?

A. I think as far as Ashdee was concerned at the time, like a lot of small firms that start into business, they had probably some financial difficulties and their motive at that time was probably to get Binks interested financially in them so that—

Q. They were trying to interest Binks in taking them on or over or something of that sort?

A. Well, there was some discussion regarding that, yes.

Q. When was that?

A. I believe it was in 1951.

Q. Where were those discussions held?

A. They were held at the Binks office in Chicago.

Q. With whom were they held? Who was present?

A. The officials of Ashdee and the officials of Binks.

Who were those officials? Can you name them, please?

A. I was present for one. Mr. Griffin was present, vice-president and treasurer, and I believe Mr. Watts, who is deceased, was present. Mr. Valiére was president of Ashdee at that time, and some of the other Ashdee people I knew, whose names I can't recall. I think John probably could.

We had several, we had some meetings about it. As far as the advisability of our going into the electrostatic venture, that is, but at that time we then decided the best thing to do would be to experiment for ourselves, so we never did do anything about that.

Q. Returning to those meetings, I just want to get a little better idea. How many meetings do you think were held on that subject of Binks becoming interested?

A. Let me put it this way, they were mostly held at the insistence of Ashdee because, as I said, they needed financial assistance, and they would come in as often as we would let them. When we had time for them.

Q. How many times do you think that was? Just give us a fairly accurate idea.

A. I would say I saw Mr. Valiere about five times.

Q. Over how long a period?

A. Over maybe a two year period.

Q. I would like to get from you—

A. (Continuing.) You must remember this too, of

course, that there was a relationship there besides because they bought our spray guns also for their compressed air method.

Q. You were selling your guns to Ashdee directly?

A. Yes, so there were other reasons. There was a customer relationship.

Q. What else did you sell Ashdee?

A. Oh, I presume we sold them hose connections. We probably sold them some pressure tanks.

Q. You sold them all the things that went with the system except for the electrostatic part of it, is that it?

A. Yes, all the spraying equipment that would be required.

Q. What would be your custom on that? Would you sell their customer or sell Ashdee to sell the customer?

A. I think probably—as far as that detail is concerned, I really am not in a position to answer that. I think that probably we did it both ways.

Q. Were you supplying Binks equipment to Ashdee's customers right along or did they have other sources of supply from your competitors?

A. They could always go to our competitors.

Q. Did they as a matter of fact, do you know?

A. I don't know whether they did or not.

Q. It is true, though, that they did a substantial business with you, isn't that correct?

A. I wouldn't say it was substantial.

Q. Substantial for them. I mean it was a large part of their business, wasn't it?

A. I wouldn't know.

Q. Returning to these meetings, I would like to get from you as best you can give it the substance of the conversations that were held between you and these officials from Ashdee. What was the purport of their discussion with you?

I know you can't remember detailed word-for-word statements, but as near as you can give us the burden of the message that was conveyed back and forth over that two-year period. Start with the beginning and tell us what happened so we will get an idea what those meetings were about.

A. Well, the meetings were mainly held—a company like Ashdee probably felt if they had the backing of Binks or if Binks bought them or took them over as a division that they would have financial support, and that they could buy the supplies that they needed in order to operate the business. That was really Mr. Valiere's main purpose in coming.

Now as far as the method, at least from talking to them, they never seemed to have any worry about the patent difficulties. As I say, I know there was some difficulty regarding the angle at which the guns were set, but the—

Q. Did they give you assurance—

By Mr. Meroni: Let him finish. I don't think he was quite through.

By Mr. Hume: I beg your pardon.

By the Witness:

A. (Continuing.) So I don't—I think that was really about the main purpose of the meetings, and they probably came back again and said they probably thought we had changed our mind, but we decided not to go along with the idea.

By Mr. Hume:

Q. Was your decision communicated to them at the outset?

A. No, I would say that the whole thing developed gradually, and they probably always held out hope that we might have a change of heart about it. But at the same time we still continued to supply them with some spraying

equipment, so the relationship always remained pleasant. Then Mr. Valiere left the company, and I can't tell you who the current president is but—

Q. Was there a period there after the initial meeting when you were entertaining consideration of their proposition?

A. I don't understand.

Q. Was there a period following the initial meeting during which Binks was entertaining consideration of their proposition?

A. Oh, I would say we did hold it under advisement, you might say.

Q. For how long a period was that, would you say?

A. Oh, usually, like in any company, there is usually a difference of opinion about those things, sometimes within the management. There were some people at Binks that maybe thought we should have gotten into it and others that didn't, but in the end it was decided that we would not.

Q. You were not interested?

A. That we wouldn't be interested in buying them out or possibly helping them out.

Q. When was that final decision communicated to Ashdee?

A. I couldn't tell you that.

Q. I think you have already indicated about two years after the initial meeting.

A. I know Mr. Valiere was a very persistent man, and he kept on for about two years, but I think we had denfiitely made up our minds prior to that. I would say after a year's time it was pretty much of a dead issue as far as us buying them out or giving them financial assistance.

Q. In relation to your communicating your final decision respecting their proposition, when was this off-shoot company of Ashdee formed?

A. The only thing I know about that is that Mr. Valiere,

the president, was a very difficult man to get along with. He was an impulsive sort of individual, and some of the key people there didn't get along with him, so it was only inevitable that there would be a break-up sooner or later and that finally occurred, and two of the men left. I said I believe the names were Turngren and Gilbert, but I am not sure about that. I only had a casual acquaintance with them, but I know, however, they are in business today under that name. I know our engineers and some of our other staff people can tell you considerably more about it than I can, and our sales people, too.

Q. What was the next thing you did after you entertained the consideration of Ashdee's proposal? Did you have any proposal from any other company?

A. At that time not to my knowledge, we didn't have any.

Q. I think you stated that you decided rather than to hook up in any way with Ashdee, you would go on your own and do your own research?

A. Well, we decided that the most intelligent decision for us to make would be to experiment ourselves and see what we could do with it.

Q. When did you first start experimentation in the electrostatic coating field?

A. I know that we bought a power pack in 1951.

Q. From whom did you buy that?

A. We bought it from Ashdee.

Q. You bought a power pack from Ashdee in 1951?

A. Yes, and we started our experimental program at that time.

Q. At which point of 1951 was that?

A. I don't recall just what month it was.

Q. Who in your company was in charge of that experimentation at that time?

A. Well, our development and research department and

the individuals were, well, Mr. Gustafsson, of course, who was head of the research department, and Mr. Baur, who was chief engineer for our standard equipment. Then we also hired a young electrical engineer by the name of James Rice, and he was assigned to the project right about that time.

Q. He was acquired for the purpose?

A. Yes.

Q. For the purpose of that project?

A. Yes, that is right, because he had that experience we hired him for that project.

• • • • •

Q. What was the first thing as far as you know that was done? What was found out in your experimentation?

A. I know that for a while we had worked with the possibility of coming out with a compressed air method, that is, we gave that some thought, and then after a time we decided to experiment on the airless method.

Q. In other words, is it fair to say that you changed your direction of thought and accomplishment there from the air type over to the airless type?

A. Let me put it this way: I mean we felt definitely that the airless method had possibilities. In other words, our own results of our experiments would more or less indicate in which direction we would go.

Now at that time or shortly after that—of course, as far as we knew at that time there weren't any patent difficulties involved as far as the airless method was concerned. So we decided to get some outside technical assistance.

• • • • •

Q. Now, in connection with your competition in the field which Binks occupies, you stated yesterday that DeVilbiss is your next biggest competitor in your field, in your line, isn't that right?

A. If I may ask you for a clarification of that question,

when you asked the question, I presumed that you were talking about those competitors who manufacture our catalog items only. Is that your question?

Q. Well, if it needs clarification in that direction, I am unaware of it but I understood you to say yesterday that the four biggest producers in your field were Binks, DeVilbiss, Paasche, and that the fourth one was the M and E Company. That is the order in which you named them yesterday; that is correct, isn't it?

A. That is the order in which I named them, yes.

Q. You also said, I think, as of those four, that you, namely, Binks and DeVilbiss were the two biggest and were about equal in the amount of business that each enjoyed?

A. I said that was my opinion.

Q. That was your opinion?

A. Yes.

Q. Is that still true? Do you want to state that is the fact again here today? Is that the fact?

A. Well, I would like to say this, that when I was thinking about the subject of competitors yesterday and when you asked me about them, Mr. Hume, I presumed that you were referring to those competitors who manufacture the same type of standard spray equipment as we do, but we do have a number of other competitors. If I have the liberty of mentioning those—

Q. In what lines?

A. Well, some of them are special. Well, you might say that they sell equipment that does compete with ours, although they don't have the complete line of paint spray equipment.

Q. You are still speaking about the standard line now?

A. Well, yes. Actually, though, it is sort of hard to separate them when you are talking about spray equipment, as I mentioned yesterday. While I did make a designation of the distinction between standard spray

equipment and industrial, we do that for convenience as much as anything else in our own firm, but they overlap so much that it is pretty hard to make a clear cut distinction.

Q. Well, just let me clear that up a bit. DeVilbiss competes with Binks in both the so-called standard line and the industrial line, isn't that correct?

A. The complete line.

Q. And I think you said—what is the fact as to Paasche? Do they compete with you in both industrial and in the standard lines?

A. Yes, they do, to a lesser extent, in both.

Q. And the same is true of the M and E Company?

A. Yes. Originally, they only were competitors in the spray booth line but within the last two or three years, they also are competing in the standard equipment line.

Q. It is still true, isn't it, that DeVilbiss and Binks are the two biggest in this field, isn't that correct?

A. Yes, of those that have a complete line of equipment. That is recognized.

* * * * *

Q. Let me ask you just one more question on this: Isn't it true that DeVilbiss and Binks, which you stated are about equal in the business, are considerably bigger than Paasche?

A. That is right. They are larger than Paasche, although at the present time Paasche is under new management and has expansion plans.

* * * * *

Q. Do you have any recollection of undertaking to employ Mr. Harry Green?

A. I have some recollection of that, yes.

Q. Well, tell us what you know about that.

A. Mr. Green, I will tell you what I do know, which isn't too much, because it was mainly handled by our

sales manager at that time, Mr. E. F. Watts, who we mentioned yesterday is deceased.

But, Mr. Green, as I understand it, had worked for Ransburg and I am not sure at the time he contacted us whether he had severed his employment with them or whether he was still with them, the Ransburg Company, but we did understand that he was looking for a position and through a contact that our sales manager made, a third party, who told us that Mr. Green was interested in finding a position, we finally got in touch with Mr. Green himself and I know that sometime in 1952 he did come to the plant and at one time he was in my office and we talked about employment terms and it did appear that he was going to come to work for us, to work in electrostatic work, but, as I recall, there was some drawback to his coming because it seems to me that at that time Ransburg had hired some of these people by contract and in this contract there was a clause that stated that if they terminated their employment with Ransburg, they wouldn't go to work for a competing firm for two years, and that was one of the reasons—well, we will say it was a possible obstacle in his being employed by us.

We more or less left that decision up to Mr. Green and after rather lengthy consideration, he decided not to come to work for use but he was going to come to work on electrostatics.

Q. Do you know of any steps taken in an effort to employ Mr. William A. Starkey who, incidentally, is one of the inventors in the patent in suit?

A. Mr. Starkey, I know of him and I remember that it was mentioned to me by the sales manager that we had a possibility of obtaining his services, but I wasn't—all of the consulting work was done by the sales manager and I wasn't in on the discussions.

The only thing I know is that we never reached an accord

of agreement with Mr. Starkey either and he never came to work for us.

Q. Who was the man in your company that interviewed Mr. Starkey?

A. I believe it was Mr. Watts.

Q. Who was the man that interviewed Mr. Green?

A. Mr. Watts. And, I also saw Mr. Green.

Q. You saw him?

A. Yes.

Q. Incidentally, Mr. Watts, was he any relation to you, Mr. Roche?

A. Yes. Mr. Watts was my brother-in-law.

Q. When was it that these interviews were had toward the possible employment of Mr. Green?

A. When was it?

Q. Yes.

A. As I recall it was in 1952.

Q. Was that just at the time you were embarking upon a program of starting to devise a system for Binks in the electrostatic coating field?

A. Well, at the same time we were interested in electrostatic, yes.

Q. But he was being sought as a possible member of the research team, so to speak, to develop something for Binks?

A. That is correct.

Q. When were the employment conferences had with Mr. Starkey? Was that at the same time?

A. I don't remember exactly when the contacts with Mr. Starkey were made. They were around that time or shortly afterwards, but I don't know.

Q. Was it for the same purpose, to add another man to your team for research purposes?

A. It seems to me that Mr. Starkey was a consultant, and he worked on either a daily fee or a weekly fee, so it

is possible that we only wanted him for outside advice or occasional advice.

Q. I think you said in 1951 that you did buy a power pack from Ashdee?

A. Yes, we did.

Q. And you did some experimentation of your own?

A. Yes.

Q. That began when in 1951?

A. Well, it began shortly after we bought the power pack in 1951.

Q. Do you know when that was?

A. I can only say that it started in 1951.

Q. I will show you, Mr. Roche, a document that has been marked Ransburg Deposition Exhibit 12 for identification, which purports to be a proposal from the Midwest Research Institute, signed by Mr. Stephens, F. N. Stephens, S-t-e-p-h-e-n-s, and I ask you what that is, if you know?

A. This is the proposal which the Midwest Research Institute submitted to Binks on a study of the application of dynamic and electrostatic techniques to paint spraying systems.

Q. This bears on its face, Mr. Roche, the date of December 2, 1952. Is that about the time it was submitted?

A. Yes, right about that time.

Q. Mr. Roche, can you tell us, with the assistance of your notes there, the duration of your contract with Midwest and the beginning and terminating dates, please?

A. The information contained in this letter was by my request, a report that I requested from Mr. Baur as to the contracts that we had had with Midwest Research Institute and the duration of each.

Do you want me to enumerate each one?

Q. I would like you to give me the information on the duration of your contractual relationship with Midwest and the beginning and terminating dates.

A. The first contract was from March, 1953 through July, 1953. There was a three month extension of the first contract, extending from August, 1953, through October, 1953.

There was also a second contract commencing November, 1953, continuing through April, 1954. There was a 90 day extension of the second contract extending from July, 1954 through October, 1954.

So actually the contracts did run a little farther than I indicated in the testimony. I thought they were cut off a little sooner than that.

Q. Then the final terminating date was what?

A. October, 1954.

Q. Did you visit the research quarters of the Midwest Institute?

A. I made one visit there to Kansas City, yes.

Q. When was that?

A. I don't remember the exact date, but it was sometime in 1953.

Q. Why was the relationship with Midwest terminated?

A. Well, the engineers would be better qualified to answer that than I would be. The only light that I could throw on that would be that we did know, of course, that the Starkey patent was issued in, I believe it was, August, 1954, which to some extent put a damper on our activities of proceeding with it in view of the Starkey patent being issued.

Apart from that, I also think that we felt that the work, at least that our own engineering department was proceeding with the work in a satisfactory manner, and that the services of the outside agency were no longer needed.

Q. Now, Mr. Roche, has your company sold any parts for use in connection with electrostatic painting systems?

A. Any parts that are used in connection therewith?

Q. Yes.

A. Well, yes, we have. If you are talking about under the compressed air method, of course we sold spraying guns and the hose connections.

I think in some cases we sold regulators, under the airless method. I believe we also sold some hose connections.

Q. Well, now, going back to the air type, the compressed air type of electrostatic coating system, I think you said that was a No. 1 type.

In conjunction with whose system have you sold equipment?

A. I believe we sold them in conjunction with all the systems that are on the market today.

Q. And that would include the three you named yesterday, Ashdee, Staticote and the Ionic?

A. Yes, and the name of that is Scientific Electric.

Q. Scientific Electric. That is, the three of them and then Ransburg, is that correct?

A. That is right.

Q. And those four would be all-inclusive; that's all there were?

A. That's all that I personally know of. There may be more.

Q. And you think you sold equipment in conjunction with systems of all of those suppliers?

A. I would say that I know that we have.

Q. When did that business start with Binks?

A. Well, I think it started with the advent of those systems. They needed a spray gun using the compressed air method.

Q. Didn't you sell booths with those systems too?

A. Yes, we often sold booths in connection with them also.

Q. What would be a complete list, if you can give it to us, of all the equipment that was used with those compressed air types of electrostatic systems?

A. The standard spray equipment which consists of the paint spray gun and the hose and the hose connections and while I am not absolutely certain what type of paint container they used with an electrostatic system, it is possible that they also bought some pressure tanks.

The sales department or the engineers could give you accurate information on that.

Q. And what about booths and other things?

A. The spray booths were definitely needed. I know that we did sell a number of booths to some that used the electrostatic systems. I know the customers that bought the electrostatic system required spray booths and we did sell a number of spray booths in conjunction therewith.

Q. Would any other equipment be needed?

A. There probably is other equipment that I haven't mentioned and our engineers can tell you about that.

Q. For instance?

A. I am sure there are parts, other parts that are required.

Q. What about an exhaust system?

A. Well, an exhaust system is an integral part of a spray booth so if you buy a spray booth you have to have an exhaust system with it.

Q. Would you need any water extractors or anything of that kind?

A. I don't know whether they used extractors with electrostatics or not.

Q. Is the need for air systems and booths as great with the compressed air type of electrostatic system as it is with

the old non-electrostatic type of system where you use compressed air without electrostatics?

A. There is still the need for a spray booth with the compressed air system.

Q. I mean, is the need great? Is the loss of paint of the same magnitude?

A. Well, if it is needed, of course it is required, regardless of the amount of overspray.

My opinion would be, at least I have always been told that there is less overspray with the electrostatic method than there is with the conventional spraying method.

Q. Now this business that you were doing in supplying guns and other equipment to the users of the compressed air type of electrostatic coating systems was a substantial business of the Binks Company, wasn't it?

A. No, it was not.

Q. Didn't Binks have a substantial part of the total business that existed in that field?

A. I would say that we got, well, probably half of that available business but the total amount of the volume is relatively small.

Q. As compared to the total business of Binks?

A. Right.

Q. But you got half of what business there was available in that field?

A. I can't give you any accurate figures on that. Of course I have talked to people at times, to people in the sales department about that and I did see a few orders. I do know we sold guns to all those concerns and my estimate is we probably got about half of that business. I am sure De Vilbiss got some, too. I can't give you accurate figures on that.

Q. That trend is continuing up to the present time?

A. Yes, it is.

Q. And about the same magnitude so far as your company is concerned, in relationship to your competition?

A. I would say that it hasn't abated.

Q. Now, has the equipment which we have identified here as the SK-661 emitter ever been sold by Binks to anyone?

A. No, it hasn't been sold by Binks to date.

Q. Has Binks ever offered it for sale?

A. Well, we have submitted a quotation to the Ford Motor Company.

Q. Is that the only quotation you have submitted?

A. That is the only one that I know of.

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Q. Did you have any meetings with any other companies or any correspondence with any other companies with respect to your possible supplying of electrostatic equipment other than these transactions we have been talking about with the Ford Motor Company?

A. I would say no, we didn't, and, of course, probably not that we couldn't have had, but, because of the Starkey patent, why, we didn't feel that we could do very much about it.

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Q. Did Binks ever develop a system for electrostatic spray coating which employed compressed air that it felt was a commercial system?

A. I would say that while we worked with the compressed air method, that we never had anything, we never developed any specific thing to offer. I think we always thought that it would be relatively easy to produce and to manufacture, if we had so desired and we had given it thought, from time to time, well, since, I would say, since approximately 1950, but we never had anything that we definitely decided on to sell or to market with the compressed air method of electrostatic coating.

Q. What facts, if you know—

A. (Continuing.) We did experiment with it.

Q. What facts, if you know, influenced you to discontinue your development in the direction of a compressed air type of system for electrostatic coating?

A. Well, when you use the word "discontinue," actually, we never had given the thought up.

Q. Well, what factors in the development program, if you know, resulted in the production of an airless type, as distinguished from the compressed air type of electrostatic coating? Is it superior, or what? What prompted that factual change?

A. Well, that was mainly a question for our engineers to decide and I presume that they must have thought it was superior in some respects or we wouldn't have . . .ted working on that development.

They had had some experience with it, had seen installations from time to time in the field and I presume they thought it must have had some advantages over the compressed air process or method.

. . . . .

Q. Is it possible that you have authorized the bringing of this complaint on a mistake of the understanding of the facts?

A. No, it is not possible. The license that was offered us by Mr. Edwin Ransburg was not acceptable to us.

Q. Now why wasn't it acceptable to you anyway?

A. Because we are in the business of manufacturing and selling equipment. When we sell equipment, the title passes, and we are not interested in getting into any sort of an arrangement where we have to tie our customers up with continuous royalty payments or these periodic payments that go on for years.

We don't conduct our business that way. We never have, and it is a very cumbersome process, to such an extent that the Ransburg Company, by operating in this way, has managed to get a monopoly on the electrostatic coating business so far as the airless method is concerned.

They are preventing us from using our method and the way we used to conduct our business. The last letter we received from Mr. Edwin Ransburg was entirely unacceptable to us.

We are not interested in continuous royalty payments.

* * * * *

Q. Now you stated that you are familiar with the terms of this complaint.

Section 9 says that:

> "The Defendant, in granting such licenses under its inventions, including that of the aforesaid Starkey, et al patent, represents to the trade and in interstate commerce that it exclusively owns a patent monopoly for 'electrostatically depositing airlessly atomized (without compressed air) liquid spray particles'."

Now, will you state, please, any facts that you know of which tend to support that allegation?

A. Well, under the present conditions, the Ransburg Electro-Coating Corporation, to my knowledge, is the only corporation in the United States that is selling—not selling, either—I mean, they have their own method of handling it.

Well, actually, you could call it—I don't think you could call it selling, but they do make these installations of the airless method and, as far as the airless method, they have a monopoly on it because of the Starkey patent and they are the only one that is able to use it and consequently it is preventing anybody else from using it unless they would agree to the very strict and rigid terms of the Ransburg

licenses, so, consequently, it is, in my opinion, equivalent to monopoly in that particular field.

Q. Well, do you mean by this that the representations of Ransburg are anything more than the exclusive right which they have pursuant to their ownership of the Starkey patent?

A. Well, I mean their exclusive right, of course, would be based on the Starkey patent.

Q. Well, in other words, what this Section 9 says is that we, that Ransburg, contends, or, it is represented that it has the monopoly or the exclusive right which is inherent in the granting of the Starkey patent and the ownership of that patent by them; that is what that means, isn't it?

A. That doesn't mean that.

Q. It doesn't mean anything else beyond that, because I can understand that, but I wanted to know if it meant anything else.

A. That's all it says.

Q. That's all it means to you and that's all you intended by it, is that right?

A. Well, in this particular clause it says:

"Starkey and others."

It is possibly referring to other patents that they may have.

Q. But it is the right that is found in the possesion and ownership of the patents it holds?

A. Fundamentally I would say it is the Starkey patent, that is right.

* * * * *

Q. Well, essentially you couldn't get a license on your own terms, that is about it, isn't it?

A. Our terms in our opinion are reasonable. We only ask for one payment at the time of the sale. That is usually the way licenses are granted.

Q. Well, that is about the summation of the two letters as you interpret it, isn't it, that Ransburg wouldn't grant a license on the terms that you thought were reasonable?

A. That is correct, reasonable and fair.

Q. As far as you and the other officials of your company are concerned, it is entirely possible that every licensee of Ransburg who has equipment has demanded that they get that equipment from Ransburg, as far as you know?

A. Would you mind repeating that?

Q. You have no way of knowing that everyone who is a licensee of Ransburg, who has equipment from Ransburg, didn't insist that they get that equipment from Ransburg of their own volition?

A. Well, it is possible as long as, I mean, I really can't answer that question. I would say that usually people would like to get equipment from somebody they think has the know-how. So naturally a lot of people, if Ransburg is in that business, they should know what equipment to offer, the best type to offer, and most customers would reach that conclusion, so they might feel they would be better off getting it from Ransburg than they would from somebody else who isn't in that particular field.

Q. It would be a normal thing for users of processes of this kind to prefer to get the equipment—

A. That would be true.

Q. (Continuing)—from the one that had the know-how?

A. Any expert, you might say.

Q. You don't mean that you couldn't supply equipment to licensees as he suggested there, do you?

A. We are not interested in doing that and we feel that that method is entirely unsatisfactory from a customer re-

lations standpoint. Our customers, we know what the reaction would be. I mean, most people want to buy something. They don't want to have to be paying continuous royalty payments, which you might say is the same thing as a rental payment.

* * * * *

Q. Now, to straighten out one point that arose in yesterday's testimony, Mr. Roche, I think you said that after the Starkey patent came out, that that was somewhat of a deterrent to your activities and that this was one factor that entered into the termination of your contract with the Midwest Research Institute.

That is correct, isn't it?

A. That is basically correct. It definitely was a deterrent.

Q. Well, what was the fact? Did you stop research more or less completely when you learned of this Starkey patent?

A. Mr. Baur could give you an accurate answer on that. I think we stopped right or about at the same time that we heard about the Starkey patent.

Q. And was the existence of the Starkey patent the cause of your so stopping?

A. It was certainly a factor.

Q. Well, was it a major factor?

A. I would say it was a major factor, although I stated before that the Midwest Research Institute could do a lot of work for us other than the research on the electrostatic system of spraying.

Q. How long did this state of relative inactivity in your research along the lines of producing an electrostatic coating system continue? How long did that inactivity persist or last?

A. Now are you referring—is this with reference to the Starkey patent?

Q. You have already told me that research activity substantially subsided about the time that the Starkey patent came out and I want to know how long that level of relative inactivity continued.

A. Since the time that we heard about the Starkey patent—there was some lapse of time between the time it was actually issued and we heard about it—the project has been relatively inactive.

I mean, we have had discussions about it, discussions about the possibility of proceeding, and, of course, at the time that the Ford quotations were submitted, more thought was given to it at that time, which I stated previously.

Q. Well, is the state of your development as it is today about the same as it was at the time this drawing was made? I speak of drawing SK 661, Exhibit E of the complaint which is dated May 12th of 1954.

A. To my knowledge, it is about the same, although Mr. Baur can elaborate on that, on what has been done since that time, more than I can.

Q. So that the matter stayed relatively dormant until you got the invitations from Ford to submit quotations, is that it?

A. It was relatively dormant, yes.

Q. And is it the activity initiated by the request from Ford that gave rise to your considerations that resulted in bringing this suit?

A. I wouldn't say that it was. I think that it is true that the quotations that we got from Ford got us all to think about it again. We had always been very much disappointed about the fact that we had spent large sums of money on this research work before the Starkey patent

was ever issued and, consequently, it was a great disappointment to the Binks management that we could not proceed with this project because we had—you might put it this way: The Starkey patent was definitely a deterrent to our producing and selling this item that we had ready to market.

Now, it is true that there was some period of inactivity. At the same time, we all felt if there was the slightest chance of our getting to market that item, why, we certainly wanted to do it in order to justify the expense that we had borne in developing that item.

Q. So, as I understand it, it happened that most of your expenditure in connection with the development had been incurred before you ever knew of the Starkey patent and you learned of it after—

A. The expense—the major part of the expense was incurred before the Starkey patent was issued.

Q. One day you awakened and found the Starkey patent covered a process for which this equipment which you had devised was applicable?

A. That is right.

JOHN W. BAUR, called as a witness on behalf of the defendant, having been first duly sworn, was examined and testified as follows:

Direct Examination by Mr. Hume.

Q. Mr. Baur, will you state your full name, please?

A. John W. Baur.

Q. And your age?

A. 43.

Q. Your residence?

A. 630 Windsor Road, Glenview, Illinois.

Q. What is your occupation, sir?

A. Engineer.

Q. By whom are you employed?

A. Binks Manufacturing Company.

Q. What is your educational background, Mr. Baur?

A. I have a degree of mechanical engineering from the University of Illinois, 1935.

Q. How long have you been employed by the Binks Manufacturing Company?

A. I was employed by them on July 14, 1941.

* * * * *

Q. What is your present title?

A. Chief engineer, standard equipment.

Q. How long have you had that title?

A. Approximately five years.

Q. When you acquired that title, did your responsibilities change from what they had been?

A. Very slightly.

Q. Just give us an idea in your own words what your job was when you went there in 1941 and how it has evolved up until the present time, and what the occasion was of your getting the title of chief engineer for standard equipment.

A. When I originally started at Binks in 1941, they had a single engineering department which covered all development work, engineering work.

* * * * *

Q. What was the department in which you took occupancy at that time?

A. At that time I called it, and still to this day, the experimental department.

Q. Is that the segment of the engineering department

that is charged with the duty and responsibility of research for new products?

A. It is.

Q. Well, now, what was the occasion of your undertaking to work with the Midwest Research Institute? How did that come about?

A. Well, we needed faster and better progress than we were capable of making with our own staff and we wanted a new and fresh approach to the problem regardless of what solution they came up with, so long as it was practical.

Q. Well, let us review a few things that went before the research contract.

Under the program that preceded the employment of Mr. Rice in April of 1952 when you and Mr. Gustafsson and others were working on a compressed air type of research program, what had you accomplished, if anything, by the time Mr. Rice came?

A. In definite product, I would have to say practically nothing, but as far as learning more about the operation, the limitations and quite a bit more of the theory and the reasons, that is about what we accomplished.

Q. And how long a period did you work on that? I think you started early in 1951 and Mr. Rice came in April of 1952. Does that represent about the time, about a year and a half or thereabouts?

A. Approximately that time, I would say, before he came.

As I mentioned before, it was not a full time or a full effort project. The exact time spent on it, I would have to consult the records in order to pick out the exact hours spent, and so on.

Q. In your work in the electrostatic coating field, did

you find that there was a great deal to be learned, for instance?

A. Yes.

Q. And there was a great deal of unknown technical behavior that was present there that had to be studied and determined, isn't that right?

A. It was not too bad on the airless—or the air—excuse me. I am getting my terms mixed.

Q. It was not too bad on the air, the compressed air type?

A. That is correct.

Q. But in the first year and a half of your effort, up to the time that Mr. Rice came, nothing beyond what you might call a general educational insight had been gained, is that correct?

A. I would say that was correct.

Q. You hadn't actually produced any equipment or any system that you had regarded as a successfully complete development, had you?

A. As a matter of fact, as far as a system, if we decided we did want to go into electrostatic systems at that time, of the type that could be offered for sale in the air type, we could have, but they did not meet our requirements of something better than what was existing already on the market.

Q. In other words, are you referring to your ability to go into the field in the manner that, say, Ashdee had entered the field?

A. That would be correct.

Q. And that you considered inferior from the standpoint of your own standards?

A. To what we wanted to accomplish, I would say it was inferior. It has merit.

Q. Why did you think those systems were inferior? I refer to the Ashdee and Scientific and Staticote.

A. Well, I probably shouldn't have said inferior. If we were going to enter the market, we wanted something better or different that we would definitely have a good sales appeal for.

Q. Something that would compete with the Ransburg system, for instance?

A. That or better, if possible.

Q. But you did recognize that you were free or felt you were free to enter the market with a system like the Ashdee, Scientific or Staticote systems?

A. I believe I will have to qualify that. I am not positive of the Staticote system. It is similar—

Q. But like the Ashdee system?

A. That is right.

* * * * *

Q. Well, now, do I understand you to say that you don't feel qualified to make an opinion on the comparison as to the relative worth of an Ashdee electronic painting system as against a Ransburg No. 1 system?

A. Under specific conditions I would venture an opinion.

Q. Well, all right.

A. Under all conditions. I don't believe that an opinion can be mentioned.

Q. Well, now, let us have a comparison, if you are able to make one, between the Ashdee No. 1 system and the Ransburg No. 2 system, which is an airless type of system.

A. That is correct. Again, it would depend upon the item.

Q. Well, do you really think that they are commercially comparable in competition one with the other?

A. In certain applications, yes.

Q. I mean, in general thinking, if you could have one or the other, which one is the one that is commercially desirable to you?

A. It would depend exactly upon what I was trying—or, coating.

Q. Well, it is true, isn't it, that the No. 2 system has outstripped the acceptance of the No. 1 types of systems on the market? Isn't that correct?

A. In certain applications it has. In other applications, it has not.

* * * * *

BENJAMIN J. HEDGER, called as a witness on behalf of the defendant, having been first duly sworn, was examined and testified as follows:

Direct Examination by Mr. Hume.

Q. Mr. Hedger, will you please state your full name and your residence and age, please?

A. Benjamin J. Hedger, 7107 North Nagle, Chicago.

Q. What is your occupation, sir?

A. I am sales manager for Binks Manufacturing Company.

Q. How long have you been sales manager for Binks Manufacturing Company?

A. Approximately two years.

Q. How long have you been employed by the Binks Manufacturing Company?

A. Approximately thirty years.

* * * * *

Q. Isn't it true that in all cases where the No. 1 type of system has been employed, that is, I mean a Ransburg system, that the regular suppliers of the air gun and associated equipment there on the market have supplied that equipment?

A. Well, they have supplied that equipment.

Q. In other words, Ransburg has never gone into the business of manufacturing air guns and the type of equipment that Binks makes?

A. Not to my knowledge.

Q. They have only supplied those things that were not otherwise on the market, isn't that correct?

A. I believe so.

Q. Now, isn't it true also that in the years that followed this demonstration in 1942 that it was the custom and practice of Binks to refer any inquiries that came to Binks with respect to interest in installing electrostatic systems, and they would be referred by Binks to Ransburg?

A. That is right.

Q. That is right?

A. Yes.

By Mr. Hume: Off the record.

(Thereupon a discussion was had off the record.)

By Mr. Hume:

Q. Now, you said a minute ago that at the present time you still make references of inquiries of your electrostatic equipment to Ransburg. Is that a fact?

A. No, I did not say that we were making reference or turning leads over to Ransburg at the present time. I said that we were still furnishing equipment for process No. 1.

Q. Yes. That is in a situation where you deal directly with the user and not through Ransburg?

A. That is right.

Q. Well, when did this practice or whatever policy prompted the practice of making such references to Ransburg cease, and what was the occasion of it?

A. Well, it hadn't actually ceased. We operated with Ransburg the same as we operate with Staticote and Ashdee

Company and Ionic Company in New Jersey, people who were interested in electrostatic equipment in the last three or four years. We recommend all four of them and let them take their choice because we do sell equipment to all four.

Q. Now, all four of these sources of supply that you have mentioned, supply systems or processes which are of the so-called No. 1 type, isn't that right?

A. That is right.

Q. In other words, they use the air type of atomization in connection with an electrostatic field, isn't that right?

A. That is right.

Q. These systems have, by their nature, that type of equipment that constitutes Binks' regular air spray gun line of equipment?

A. That is right.

Q. In all of those cases do—well, let us say, what is your practice in those cases of those four suppliers—I think you have already told us about Ransburg, but, say, the other three, with respect to supplying themselves the air spray equipment of the type that Binks supplies? Do they rely on the Binks and other existing sources or do they undertake to supply it themselves?

A. No. They rely on the Binks and other companies.

Q. So, in so far as the electrostatic systems of the No. 1 type are concerned, to the extent that those systems embrace the kind of equipment that Binks supplies or that Binks still has, it does enjoy that business?

A. That is right.

Q. Did that continue right on through the years after the No. 1 type of system was introduced, up to the present time?

A. Yes.

Q. So, there has been no diminution of your opportunity to participate in the enjoyment of that business, along with

your competitors, in so far as the No. 1 system is concerned?

A. That is right.

Q. That applies, does it not, to Ransburg systems as well?

A. That is right.

* * * * *

Q. Mr. Hedger, I am going to call your attention to Section 9 of the pleading called cross counterclaim, filed by Binks. It reads as follows:

> "The defendant, in granting such licenses under its inventions, including that of the aforesaid Starkey et al patent, represents to the trade and in interstate commerce that it exclusively owns the patent monopoly for electrostatically depositing airlessly atomized (without compressed air) liquid spray particles."

Do you have any knowledge of facts that would tend to support that allegation?

A. Well, if I understand it properly, in calling on the trade, by which I mean the industry, the manufacturers, I know that the Ransburg unit is offered to them for depositing paint on their products. I don't know exactly whether that answers your question or not. For instance, No. 9—it is offered to them in a package deal, the complete setup with license and royalty payments and that I know from a number of different companies that I have personally contacted and also through my own salesmen.

Q. Now, this allegation to which I have directed your attention, alleges what Ransburg or the defendant here represents to the trade and you will notice it says "owns a patent monopoly." Do you understand the meaning of that allegation?

A. I don't believe I do, entirely, with the exception that I understand monopoly and my understanding of that

would be that you actually have to have the permission or the license from Ransburg in order to use this particular process or this particular unit.

Q. Well, does it mean anything to you other than the fact that Ransburg claim they have got the ownership to the Starkey patent?

A. No, I don't believe it does.

Q. It means that and no more than that, so far as you know?

A. That is right.

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PLAINTIFF'S EXHIBIT MMMMM.

JAMES H. RICE, called as a witness on behalf of the defendant, having been first duly sworn, was examined and testified as follows:

Direct Examination by Mr. Hume.

Q. Mr. Rice, will you please state your full name, age and residence, please?

A. My name is James H. Rice; age 29. I live at 143 West Devon Avenue, Roselle, Illinois.

Q. What is your occupation, sir?

A. Engineer.

Q. Are you employed?

A. Yes.

Q. By whom?

A. Binks Manufacturing Company, Chicago.

Q. When did that employment start?

A. April, 1952.

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Q. Now, what did you do when your employment commenced with Binks? What were your first actions? What did you do. Just relate what happened from then on.

A. I was given a pile of approximately five hundred patents to go through and weed out those that didn't pertain to the electrostatic problem and to familiarize myself with the existing patents at that time.

Q. The patents were there when you arrived?

A. That is correct.

Q. And did you make that patent study?

A. I did.

Q. Well, were you considering these patents from the standpoint of learning from the disclosures or determining the scope of the patent coverage offered by each?

A. My assignment was to familiarize myself with it so that I would know in what direction to go in an attempt not to be copying anybody else or involving us in anything—more or less, to learn the patent system, of which I was not familiar at that time. I had no experience with it.

"Patent" was a word at that time to me.

Q. This was your first encounter with a patent copy, face to face?

A. That is correct.

Q. And your general objective was to avoid unexpired patents, is that it?

A. That is correct.

Q. And to learn whatever you could learn from the entire mass of patents that were at hand?

A. That is correct.

Q. Did you ever arrive at any conclusions as a result of that investigation of patents?

A. No, sir. It was strictly for information.

Q. Did you ever write up any report of your findings?

A. No, sir.

Q. How long were you engaged in this patent investigation?

A. I would say it took approximately two months to

read through them, sort them out, and I never really finished it. I more or less kept those as a reference, from time to time when I wanted to refer to them. Since no report was requested or required, we just made it a part of the project and kept them around.

Q. Did you find any patents in the group that were owned by the Ransburg Company in this suit, the defendant in this suit?

A. Yes, sir.

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Q. Incidentally, were you trying, along with your experimental work, any guns using air for atomization?

A. From time to time, we did.

Q. Didn't that field hold out any promise to you?

A. Yes, it did.

Q. And air guns were one of your regular commercial items, were they not?

A. Yes, they were.

Q. Well, what was wrong with the idea of settling, in your own minds, on a development of the type of system employing air atomization? What was wrong with that, if anything?

A. At the time, the air system was fairly well developed, was fairly well established in the field. Problems involved in putting in an air system weren't such that it warranted our investigation. We were supposedly doing research.

Now, the air system, we felt, didn't require too much research. In other words, there was nothing stopping us from entering the field at that time with an air system.

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Q. Isn't it true that a type of system which employed air for atomization in conjunction with the electrostatic deposition, effected an economy in paint savings over the air guns that didn't have the electrostatic field?

A. I will say that that depends on the installation, on the object being coated. But, it was my experience that there were some items that could not be coated satisfactorily with any electrostatic system over an automatic system, and vice versa. In other words, it depended a great deal upon the material being used, on the object being sprayed, the coating desired, and this question of savings is a subject that I don't believe anyone at the present time has made a satisfactory analysis of.

Q. Well, you are not willing to admit, then, that the electrostatic painting type of system which still uses an air gun, however, couldn't enter the field in numerous applications where it can be used and can effect substantial savings and economy through savings of paint?

A. It already has, but we were not in the position—we did not feel that we had to come in and do something that had already been done.

Q. Well, yes. Now, is it not true also that comparing the type of procedure wherein you electrostatically atomize in an airless fashion and use an electrostatic field for deposition in conjunction with that that you again effect a substantial savings in paint where that system can be used over the type where air is used in the atomizing which has been referred to as a so-called No. 1 type of system?

A. Well, I will answer that in this way: Considering all three systems that seem to be involved in here, the air atomizing spray gun alone is one system, the air atomizing gun employing an electrostatic field, and a system employing SK-661—there are items that cannot be sprayed by all three of those systems satisfactorily. Any one of those systems might be more efficient for a particular job. In other words, if you pick out one specific item, I will say now that one or two of those systems mentioned would be applicable and maybe one or two of the remaining, depending on what it is, would be absolutely useless.

I have seen installations of the electrostatic type where the touchup that was required meant that the man doing it could have done the whole job with the same amount of paint he was using to do the touchup.

We are getting to the point, in answer to your original question, of why we didn't enter into the air gun electrostatic field alone.

The fact is that of any one of these systems, it could not generally be said, "This is the cure-all." Or "This will do everything." We have had in our plant, on automatic jobs, articles that we could paint that electrostatic systems have been set up for and from our figures that we could see, we couldn't see where the savings were. There were other jobs where there were savings. So, when you ask, wasn't one system superior to another, you would almost have to take a specific installation.

Q. Well, now, let me ask you this: You have addressed yourself rather completely to what may be regarded as the uniqueness of each of these systems and what the situation is where we do not substitute one for the other. There is a large area, though, and a large number of kinds of products, where they can be substituted one for the other and are substituted one for the other, isn't that correct?

A. Correct.

• • • • •

Q. Yes, but you feel that there are applications for the electrostatic type of deposition where an actual better coating is arrived at which is possible with the air gun type where you have no electrostatics?

A. Not better, no, sir; more efficiently.

Q. So, the benefit is not, then, in a better coating?

A. No, sir.

Q. In other words, the old system of using air guns without electrostatic fields could give you as good a coat-

ing as you ever hoped to achieve with electrostatic, is that it?

A. In many instances, yes, sir.

Q. Well, is there any instance where that isn't true? Certainly an air gun is hand held and is more flexible than any other type, isn't it?

A. That is right.

Q. So far as the contour of the part is concerned, the hand-held gun is operating on the side of improved results so far as the coating is concerned, is that not true?

A. That is where over-spray or feed-back, in other words, bouncing off on an item comes in. I would have to again state, as before, an item that is particularly shaped so that the electrostatic field lends itself to it—in other words, the hand gun—not the hand gun but the automatic gun, would not be able to produce the same coating in the same spot without additional touchup or reinforcement. The same is true in the opposite sense: In other words there are many cases where you cannot deposit electrostatically and you must use an automatic or hand gun to put paint in those particular places.

Q. And that is done today? That touchup system is used extensively?

A. Yes.

Q. That is a combination of the two different systems?

A. But here, we have found in many cases the touchup —the man might as well be doing the whole thing.

Q. Just a couple of more questions. In those cases where you feel that the electrostatic type of system has a real place in the scheme of things, pertaining to painting, wherein does the advantage lie if it is not in improved coating?

A. The advantage lies in savings of the amount of material used per unit of production.

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Q. Now, at the time that these drawings came in from Ford, you have already stated, I believe, that you had been in a state of inaction for approximately a year, being held up, pending some investigation of the Starkey patent here in suit?

A. It was my understanding that I was to hold up; that there were some discussions and meetings that went on in management. All I was given was the decision that I was to hold it up.

Q. What happened during that year, in your department, as far as the disk, the slotted disk emitter is concerned?

A. It was packed up carefully and stored in the department.

Q. Did all research terminate?

A. Actual testing and physical research, I would say yes, but I am still interested in the details.

I, of course, went on on my own, maintaining my contact with the field, but I was assigned to other projects and other work that came up, from time to time, that did not pertain to electrostatics.

Q. So, I think it is fair to say that by and large and for the most part, the project on the electrostatic emitter came to a halt at that time and a period of about a year of inaction followed?

A. That is a fair—

Q. That is a fair statement?

A. —a fair statement.

PLAINTIFF'S EXHIBIT NNNN.

MILTON F. PLEVA, called as a witness in behalf of the plaintiff herein, having been first duly sworn, was examined and testified as follows:

Direct Examination by Mr. Meroni.

Q. Please state your name.

A. My name is Milton F. Pleva.

Q. Where do you reside, Mr. Pleva?

A. In Western Springs.

Q. Illinois?

A. That is correct.

Q. How old are you, sir?

A. I'll be thirty-seven in June.

Q. What is your educational background, briefly?

A. Well, I have a Bachelor's degree in civil engineering from IIT and, of course, all of the preliminary education prior to going to college.

Q. You are a graduate engineer?

A. That is correct.

Q. By whom are you presently employed?

A. By Ransburg Electro-Coating of Indianapolis.

Q. How long have you been employed by that company?

A. Since September of 1951.

Q. Has the employment been continuous since that time?

A. Yes, sir.

Q. In what capacity are you employed there?

A. As a sales engineer.

Q. Has that been your capacity of employment since the commencement of the job?

A. Yes, sir.

Q. Do you have assigned to you any particular area?

A. Yes.

Q. Will you state for the record briefly what sales area you represent for the company?

A. The State of Minnesota, the State of Wisconsin, roughly the northern half of the State of Illinois and Lake County of Indiana, and within the Upper Peninsula of Michigan, which, of course, is adjacent to Wisconsin.

* * * * *

Q. In order to save time I am going to hand you as a group a number of bulletins and pricing guides that have been identified in this case as Exhibits JJJ-1, OO, NN, YY, JJJ-2, and III-1, and I will ask you if you have seen any of these bulletins before and, if so, to state how they came to your attention.

A. I have seen all of these except the first one. The first one is dated August 18, 1950.

By Mr. Hume: Exhibit JJJ-1?

A. Exhibit JJJ-1, I have never seen that one. I have seen all the rest of them and they have all come to me through the mail, to the best of my recollection.

Possibly one of them somewhere might have been handed me when I was in Indianapolis, but I don't remember that. I would say they all came through the mail.

By Mr. Meroni: Q. Did you undertake to follow the instructions in the guides that went to you in those bulletins?

A. Sure.

Q. You understood, as a matter of company policy, that you were to follow the instructions and guides that were embraced in these bulletins, did you not?

A. Sure.

Q. Now, when you first came with the company were you authorized to sell agreements on electrostatic systems where the company would not supply the equipment?

A. Yes.

Q. You say you were?

A. I was told that we would license a user without providing our equipment.

Q. Well, is it not a fact that you received that information in the form of these bulletins?

A. Oh, I am sure I was told that at the time that we were going over the entire operations.

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Q. Mr. Pleva, in answer to one of Mr. Meroni's questions in regard to the 1953 letter—

By Mr. Meroni: I think that is the one you want (indicating).

By Mr. Hume: Q. (Continuing.) —which was handed to you and identified as Exhibit LLL-2, he asked you whether or not you had ever discussed with any representative of the Ransburg Company the reasons for sending out that letter.

Now, what was your understanding of his question with respect to the term "company representative"?

A. Well, I assume he meant representatives like I, other than sales representatives in the company, in the various territories.

Q. Well now, on the assumption that he might have intended to embrace anyone representing the company, would your answer still be correct in including the officials of the company?

A. No, because, as I indicated earlier, I did discuss this thing with Ed Ransburg prior to its going out. In fact, I indicated at that time that I was unhappy with the thing, and so stated.

Q. Well, did you ever discuss with Mr. Ransburg or anyone else in the company the reasons why the letter was sent out?

A. Sure. At the time that I squawked about it, I mean, I wanted to know what the purpose was, why we were doing this.

Q. What did he tell you was the reason, if he did tell you?

A. Well, he advised that they wanted this letter to go out so as to be sure that all of our customers realized that if they wanted to use a Ransburg license, a process license, and provide their own equipment, they were so able to do, pointing out that this had always been a company policy, but that that letter would insure that if any of our people in the field had been derelict in advising customers of this, this would officially do it in writing.

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ELMER HOULBERG, called as a witness in behalf of the plaintiff herein, having been first duly sworn, was examined and testified as follows:

Direct Examination by Mr. Krause.

Q. Would you state your name, please?

A. Elmer Houlberg.

Q. Where do you live, Mr. Houlberg?

A. I live in Dundee, or just west of Dundee. It's Sleepy Hollow Manor.

Q. Is that the post office address?

A. The post office address is Dundee, Illinois.

Q. What is your age, sir?

A. My age is forty-two.

Q. By whom are you employed presently?

A. Chicago Rawhide Manufacturing Company.

Q. What is your position with that company?

A. Assistant general manager.

Q. Can you give us a brief outline of the scope of your duties and responsibilities in your present position?

A. Well, the responsibilities with the company generally have to do with the controlling of production and

purchasing within the Elgin plant. This is the Elgin Division in Elgin, Illinois.

Q. How long have you been employed by Chicago Rawhide Company?

Twenty-two years.

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Q. Prior to your trip to Indianapolis, sir, I believe you said you contacted Mr. Pleva.

A. Right.

Q. Did he give you any indication of what the financial arrangements would be for a Ransburg system, the basis upon which they licensed it?

A. No, that wasn't discussed too much in the beginning. We were primarily interested in finding some equipment at the time that would fit our needs and Ransburg was one among three or four of the sources that we contacted at that time.

• • • • •

Q. Where did you first learn of the Ransburg Electro-Coating Company? How did that come to your attention?

A. It came about through one of our men in the office, Mr. Charley Finney, began with his contact with Ransburg. I believe we were furnishing some packings to Ransburg and in the course of conversation or contact with Ransburg he learned of this electro-coating equipment which was available and it was through his contact that we obtained information as to such equipment.

Q. Did you have any knowledge at the time you first contacted them as to the method that they did business under—that is, on a rental basis?

A. No.

Q. And at that time, I think you said, you were also giving consideration to other sources of supply of—

A. That's right.

Q. (Continuing.) —spraying equipment.

A. Yes.

Q. What other sources were you pursuing at that time?

A. Binks Manufacturing, Spra-Con Company, Ashdee, DeVilbiss. That's it.

Q. Now, what kind of equipment was under consideration in your dealings with the Binks Company?

A. Spray equipment.

Q. You mean the air spray type of equipment?

A. A rotating unit assembly, a self-contained unit with spray gun equipment.

Q. And when you say "spray gun," do I understand you to mean a gun that used the compressed air in spraying?

A. That's right; right.

Q. And did that equipment embrace any electrostatic proceedures at all?

A. No.

Q. What kind of equipment was under consideration in your association or dealings with the Spra-Con Company?

A. There we merely contacted them and they pointed out to us that they really had nothing that they could offer us in connection with our application.

Q. What was the type of equipment under consideration in your dealings with Ashdee at that time?

A. Ashdee was an electrostatic painting equipment.

Q. And what was under consideration with DeVilbiss at that time?

A. DeVilbiss was spray equipment.

Q. Of a type not employing electrostatic—

A. No, sir; electrostatic type—

Q. (Continuing) —fields?

A. Continuing) —compressed air equipment.

Q. Did you run any tests or obtain any data with respect to any of these other sources to determine the possible value of this other equipment in the hands of your company?

A. Yes, I did.

Q. You did?

A. Yes.

By Mr. Krause: Mr. Hume, I think that the last question was improper cross-examination, departing from the scope of our direct examination.

By Mr. Ice: Well, he was asked what other equipment he looked at and he named four sources on direct.

By Mr. Krause: But he didn't evaluate the relative merits.

By Mr. Hume: Well, we are just trying to get the full benefit of his testimony here on these other competitive considerations.

Q. Now, when in relationship to your contact with Ransburg did you deal with these other companies, Binks and Spra-Con and Ashdee and DeVilbiss? Was it before or after or at the same time?

A. Before.

Q. Now, have you got in your file there a folder entitled Ransburg No. 2 Process?

A. Yes, I do.

By Mr. Hume: I will ask the reporter to mark the folder which was produced from the witness' files, bearing the title Ransburg No. 2 Process, as Defendant's Houlberg Exhibit No. 1 for identification.

(Exhibit so marked.)

Q. I will ask you to look at the exhibit that has just been marked as Defendant's Houlberg Exhibit 1 for identification and ask you when that first came to you or the company.

A. It came to us in June of '55.

Q. And where did you get it, if you know?

A. I believe that, as I recall, it was left with us by Milt Pleva at the time he was first contacted.

Q. Did that come into your personal possession at that time?

A. Yes, it did.

Q. Did you look it over and read it at that time?

A. I looked it over; I won't say that I read it.

Q. And was this bulletin or folder which has been marked as Defendant's Houlberg Exhibit 1 for identification a source of information to you as to what the Ransburg equipment would do?

A. Would you repeat that again?

Q. Was this bulletin that I have marked as Defendant's Houlberg Exhibit No. 1 for identification a source of information to you as to the nature of the Ransburg equipment?

A. That's right.

By Mr. Krause: Mr. Hume, I object to the question. The bulletin speaks for itself.

By Mr. Hume: I am just asking him if it served as a source for his information, did he rely on it and gain information from it.

By Mr. Krause: Objection.

By the Witness: Pardon?

By Mr. Krause: Same objection.

By Mr. Hume: Go ahead. You may answer.

A. We used that for the source of the information the same as we did on the information we got from DeVilbiss, Binks, Ashdee, Spra-Con.

* * * * * *

PAUL ROTHE, called as a witness in behalf of the plaintiff herein, having been first duly sworn, was examined and testified as follows:

Direct Examination by Mr. Krause.

Q. Would you state your name, please?
A. Paul Rothe.
Q. Where do you live, Mr. Rothe?
A. Lombard.
Q. Illinois?
A. Lombard, Illinois.
Q. What is your age, sir?
A. Forty.
Q. What is your educational background, Mr. Rothe?
A. I have a year of college.
Q. In what field?
A. Engineering.
Q. Are you appearing here under a subpoena?
A. Yes.
Q. By whom are you employed presently, Mr. Rothe?
A. National Cylinder Gas Company.

* * * * * *

By Mr. Hume: Q. Now, Mr. Rothe, I notice that you have in your possession there a bulletin or folder of the Ransburg Company.

A. Yes, I do.
Q. Do you find that in your file?
A. Here (indicating).

By Mr. Hume: This was the bulletin entitled Ransburg No. 2 Process, the Electrostatic Paint Spray, which was copyrighted in 1953. This is made up in white, black, and yellow coloring and is the same as the one identified earlier in Mr. Houlberg's deposition.

By Mr. Meroni: I haven't made a comparison, but I will take your word for it.

By Mr. Hume: It was identified therein as Defendant's Houlberg Exhibit No. 1 for identification.

By Mr. Meroni: All right.

By Mr. Hume: Q. When did you receive that, as far as you can recall?

A. I can't recall. I believe Milt Pleva must have left it with me on one of his visits.

Q. Do you think he handed it to you on that occasion?

A. I believe he did.

Q. On the occasion of one of his visits to your office?

A. Yes.

Q. Can you recall whether it was before or after the trip to Indianapolis?

A. I believe it was before.

Q. Would it be characterized as in the early stages of your dealings—

A. Yes.

Q. (Continuing)—with him?

A. Yes.

Q. Did you familiarize yourself with the contents of that folder?

A. Yes, I looked through it.

Q. And did the information contained therein serve as a guide to you as to the character of the Ransburg equipment and the method of their handling leasing arrangements with their customers?

A. It gave us an idea of what their equipment consisted of.

Q. And did it give you any idea as to the method of doing business?

A. No, I don't recall that at all.

Q. I will call your attention particularly to the items listed in the columns on the last inside page of the folder

and the opposite sheet and ask if that refreshes your memory and whether or not you made any perusal or study of those disclosures at the time you first got this bulletin or shortly thereafter.

A. I am quite sure I must have read the pamphlet at the time I received it, but, naturally, three years have gone by and I can't recall too much about it.

Q. Well, is it fair to say that you were in possession of the information that is set forth in that bulletin at that time?

A. Well, I had the information in the file, yes. I can't quite understand the question.

Q. Well, were you aware of the information that is contained in there? Had you read it and become knowledgeable as to the provisions that are set forth on these two sheets?

A. I would say yes, I had.

Q. At that time?

A. Yes, that is correct.

Q. And that was before you went to Indianapolis?

A. Yes.

* * * * * *

Q. Mr. Rothe, at the time you had these negotiations you testified about, did you understand that there was any alternative arrangement available, other than the one tendered to you by Ransburg?

A. No.

By Mr. Krause: That's all.

By the Witness: Excuse me. You mean could I secure this electrostatic painting from some other source?

Q. No. I meant was there an agreement or some procedure available from Ransburg other than the one which was tendered to you in the form of that contract.

A. No; that is the only agreement.

Q. Is that the only one you understood to be available?

A. No. I looked into others at the time, too.

Q. I mean from Ransburg.

A. Oh, from Ransburg.

Q. Yes.

A. I didn't know of any other. I was led to believe that this equipment had to be leased and, of course, I wasn't interested in obtaining it in any other manner than in a package unit.

* * * * *

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DEFENDANT'S EXHIBIT 8-A.

Aug. 3, 1954 W. A. STARKEY ET AL. 2,685,536

METHOD FOR ELECTROSTATICALLY COATING ARTICLES

Filed Sept. 29, 1944 2 Sheets-Sheet 1

FIG. 1

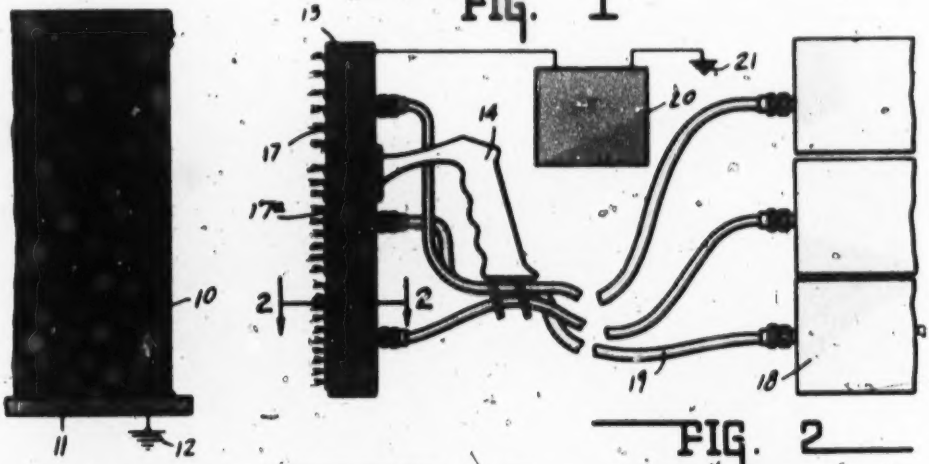


FIG. 2

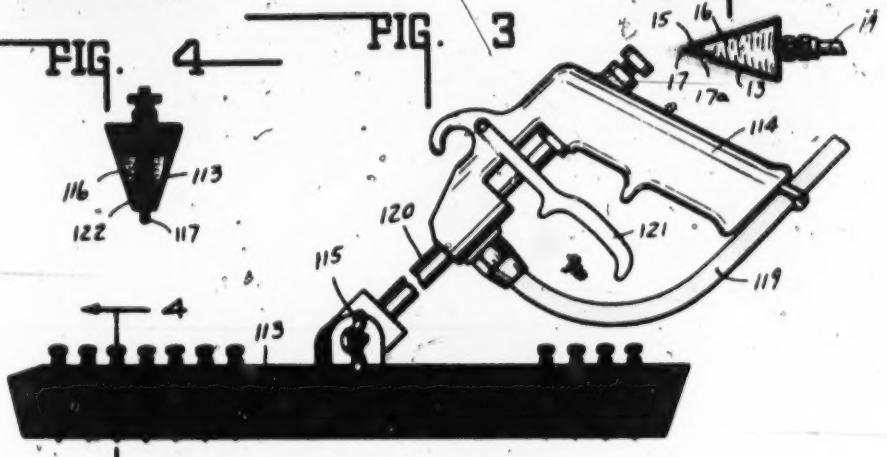


FIG. 3

FIG. 4

FIG. 5

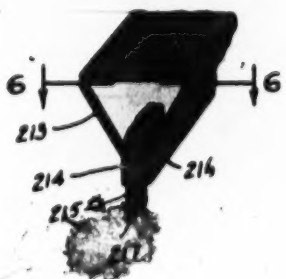
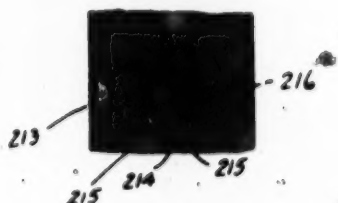


FIG. 6



INVENTORS.
EDWIN M. RANSBURG
WILLIAM A. STARKEY.

BY Lockwood, Goldsmith & Galt.

DEFENDANT'S EXHIBIT 8-B.

Aug. 3, 1954 W. A. STARKEY ET AL 2,685,536

METHOD FOR ELECTROSTATICALLY COATING ARTICLES

Filed Sept. 29, 1944 2 Sheets-Sheet 2

FIG. 7

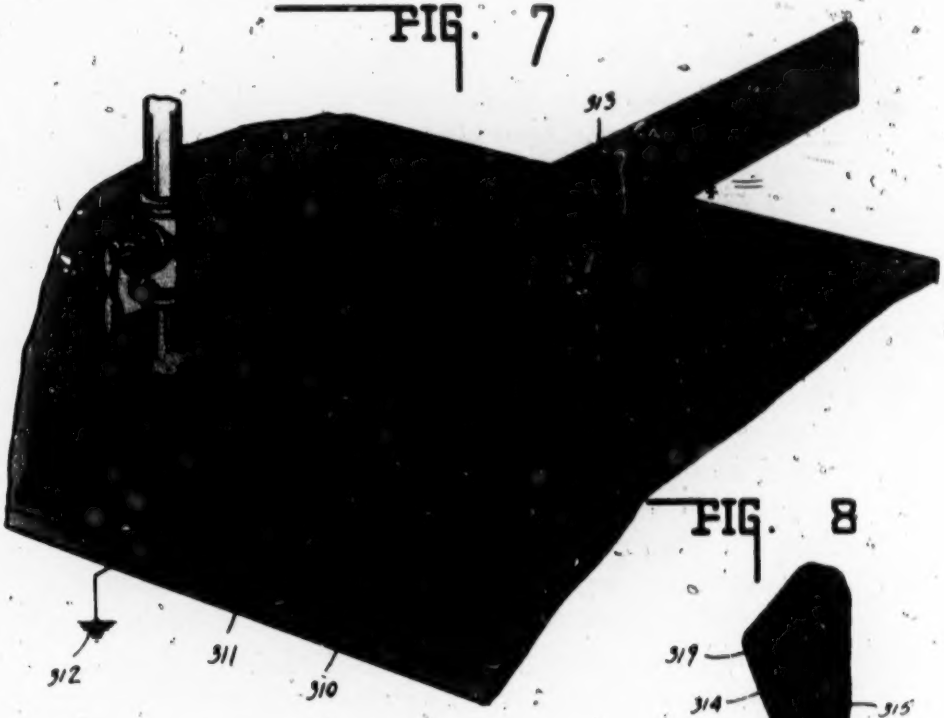


FIG. 8

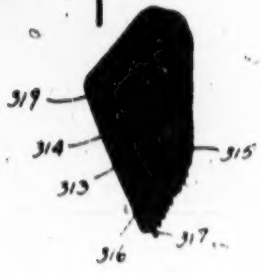
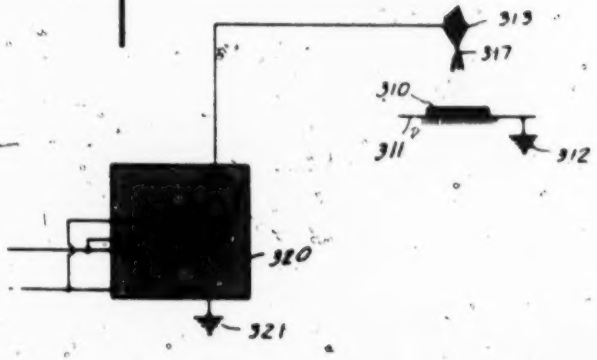


FIG. 9



INVENTORS.
EDWIN M RANSBURG
WILLIAM A STARKEY
BY Lockwood, Goldsmith & Galt
ATTORNEYS

DEFENDANT'S EXHIBIT NO. 19.

Case 166—Proposed New Claim.

18. Apparatus for electrostatically spray-coating an article, comprising an atomizing head, means for feeding liquid coating material to said head, means including said feeding means for distributing coating material to an extended atomizing zone where it is to be atomized from a plurality of spaced points (from which atomization takes place), said points being sufficiently close together to permit the coating material to bridge the spaces therebetween, a support for supporting an article to be coated in spaced relation to said atomizing zone, and means including a high-voltage source for creating over the surface of the article on said support an electrostatic field capable of atomizing the coating material into finely divided, electrically charged particles and electrostatically depositing particles atomized from said atomizing zone on the article while still in liquid state, said atomizing head and support being so relatively disposed as to provide between the article and the atomizing zone a spacing great enough to permit substantial dispersion of the atomized particles by the electrostatic forces of the field.

DEFENDANT'S EXHIBIT NO. 23.

Harper J. Ransburg Co.,
Indianapolis.

August 29, 1947.

Bulletin No. 55.

To: All ECD Distributors.

Gentlemen:

The purpose of this bulletin is to outline our policy toward prospective users of the Ransburg Electrostatic Spraying and Detearing Processes.

You are familiar with the major items which we give a customer under our "Agreements" such as:

1. Specialized equipment.
2. Engineering recommendations prior to installation.
3. Supervision of the installation.
4. Replacements of defective parts.
5. Patent infringement indemnification to the extent of the fees paid.

We know of no customers who have desired to furnish their own specialized equipment. However, if a prospective customer should insist upon furnishing his own specialized equipment, our policy is to permit him to do so. In such case our fee to the customer would be proportionately less. However, in such situation, quite naturally, we would be forced to give more limited advice, recommendations and service. Our engineering recommendations prior to installation would have to be more limited. We could not give as extensive supervision of the installation. We could not replace defective parts. We could not give patent in-

fringement indemnification. We could not be responsible for the operation of the installation.

We do not sell specialized equipment to the general public even though it is our policy to license prospective customers who prefer not to use our specialized equipment.

Yours very truly,

E. M. Ransburg.

EMR:bh

DEFENDANT'S EXHIBIT NO. 24.

Ransburg Electro-Coating Corp.,
Indianapolis.

Bulletin.

August 18, 1950.

To All Distributors.

Gentlemen:

We have noticed that voltage supplies have been advertised which are supposedly suitable for electrostatic painting. The purpose of this bulletin is to again call your attention to our policy toward prospective users of our processes who might wish to use equipment other than ours.

The fact that normally we supply our customers with equipment of our own design greatly facilitates and simplifies our giving engineering recommendations, supervision of installation, replacement of defective parts, spark guard equipment and patent-infringement indemnification. For that reason, we believe it best, both from our own and our customers' standpoint, that our specialized equipment be used.

We know of no customers who have desired to furnish their own equipment for use with our processes. However, if a prospective customer should wish to use equipment other than ours, it would not be contrary to our policy. In such a case, however, pricing, etc., would be different from normal, and each case would have to be given special consideration. Therefore, if such a situation should arise in your territory, we recommend that you refer the situation to this office.

Yours very truly,

Ransburg Electro-Coating Corp.

I acknowledge reading this bulletin on this ..... day of ..... 1950.

DEFENDANT'S EXHIBIT NO. 26.

Ransburg Electro-Coating Corp.,
Indianapolis, Indiana.

May 27, 1953.

To All Distributors:

Attached is a new pricing sheet showing a change in initial fees for Detearing and No. 1 Spray Process and a more concise listing of No. 2 Process initial and monthly fees. As you know, it has always been our policy to be willing to grant any customer a license under our patents with or without our equipment (our Bulletin of August 18, 1950). The enclosed price sheet shows the differences in initial fees so that all interested customers can be advised promptly by you of the proper prices and terms of agreements either with equipment and appurtenant items, or a license without equipment and appurtenant items. At-

tached are four sample agreements, identified as A, B, C, and D.

A is our standard detearing agreement under which the customer obtains from us all the services and facilities we are willing to supply.

B is our standard detearing agreement under which we license our detearing process without furnishing equipment and appurtenant items thereto.

C is our standard No. 1 spray agreement under which the customer obtains from us all the services and facilities we are willing to supply.

D is our standard No. 1 spray agreement under which we license our No. 1 Spray Process without furnishing equipment and appurtenant items thereto.

You will notice that the principal changes in agreements identified as B and D are:

1. All of the paragraphs relating to Ransburg's providing equipment, supervision, and patent infringement indemnification have been eliminated.
2. The Inspection paragraph in the new agreement gives Ransburg the right to inspect User's plant to determine the manner in and extent to which User is using the Detearing Process, whereas in the old agreement the Title paragraph provides that Ransburg shall have the right to enter User's plant to determine the manner in which its equipment and process are being used.
3. The Fee paragraph has been changed by modifying the initial fee and the basic minimum monthly fee to take into account the fact that Ransburg is not furnishing any equipment and appurtenant items.

We are sending these to each of you with the request that each prospective customer be advised that either agreement form is available and the attached price sheet

will give you the price differentials for the respective agreements.

In the event any of our present detearing or No. 1 spray licensees are unfamiliar with the fact that they can as readily obtain a license from us without equipment and appurtenant items, they will now be advised by an appropriate letter from us, as per the enclosed letters E, F, G and H.

Yours very truly,

E. M. Ransburg.

EMR:eh

Letter E.

Gentlemen:

We wish to inquire whether you would like to convert the subject electrostatic spray licenses to licenses under which we would furnish you no equipment and under which we would assume no obligation for replacement parts, supervision or service, or patent infringement indemnification. If you should elect to assume responsibility for these items for yourself and return our equipment, your basic minimum monthly fee of $100.00 for each unit would be reduced to $80.00 for each unit, and your initial fee under No. ..... would be reduced from $2600 to $800.

If you are interested in such a proposal, upon advice from you we will send our alternate license agreement.

Letter F.

Gentlemen:

We wish to inquire whether you would like to convert your present electrostatic spray license to one under which we would furnish you no equipment and under which we would assume no obligation for replacement parts, supervision or service, or patent infringement indemnification.

If you should elect to assume responsibility for those items for yourself and return our equipment, your monthly fee of $182.91 would be reduced to $162.91 for the first shift's operation.

If you are interested in such a proposal, upon advice from you we will send our alternate license agreement.

Letter G.

Gentlemen:

We wish to inquire whether you would like to convert your present detearing license to one under which we would furnish you no equipment and under which we would assume no obligation for replacement parts, supervision or service, or patent infringement indemnification. If you should elect to assume responsibility for these items for yourself and return our equipment, your basic minimum monthly fee of $50.00 would be reduced to $37.50.

If you are interested in such a proposal, upon advice from you we will send our alternate license agreement.

Letter H.

Gentlemen:

We wish to inquire whether you would like to convert your present detearing license to one under which we would furnish you no equipment and under which we would assume no obligation for replacement parts, supervision or service, or patent infringement indemnification. If you should elect to assume responsibility for those items for yourself and return our equipment, your monthly fee of $142.37 would be reduced to $129.87.

If you are interested in such a proposal, upon advice from you we will send our alternate license agreement.

Serial No. .....

Ransburg Electrostatic Detearing Agreement.

This agreement, entered into by and between Ransburg Electro-Coating Corp., an Indiana corporation, having its principal place of business at Indianapolis, Indiana, hereinafter called "Ransburg," and .....

.....

.....

hereinafter called "User," Witnesseth:

Whereas, Ransburg owns certain United States letters patent and inventions all pertaining to and covering methods and apparatus used in the electrostatic detearing of articles, the process so used being referred to as "said Process," has acquired much engineering data and experience pertaining to said Process, is conducting research in that field, has performed a substantial amount of engineering in adapting said Process to commercial use, has supplied User with the results of said engineering pertinent to User's production, and has designed special equipment therefor; and

Whereas, User desires to use said Process and benefit from Ransburg's engineering and requests that Ransburg furnish certain special equipment hereinbelow described;

Now, therefore, it is mutually agreed as follows:

1. License: In consideration of the payment by User of the fees herein provided, Ransburg hereby grants to User, subject to and in accordance with all of the terms and conditions of this agreement and while the same is in effect, a nonexclusive nonassignable license to use said Process at User's plant in ....., with one unit as shown in Ransburg's Drawing No. ....., subject to such changes therein and such further specifications

as Ransburg may prescribe, for electrostatically detearing

.....,

but said license shall not include the right to use said Process in the coating of piezo-electric devices and magnetic recording and/or reproducing apparatus.

2. Equipment: Ransburg will furnish User, for its use of said Process, one voltage pack and electrical controls, electrodes and insulating supports therefor, and high voltage lead-in means, which will be shipped prepaid to User's aforesaid plant upon request of User. As parts of Ransburg's equipment become defective, User agrees to return prepaid all such defective parts to Ransburg promptly. Ransburg will furnish replacements without charge, of any such defective parts which become defective as a result of ordinary wear and tear from proper use and operation, provided such parts are returned to Ransburg within thirty days after they become defective. If said defective parts become defective from improper use, operation, or negligence of User or if said defective parts are not returned to Ransburg within said thirty-day period, User agrees to pay Ransburg Ransburg's standard charges for furnishing replacements for said defective parts. The furnishing of equipment and replacements by Ransburg is subject to the availability to Ransburg of the necessary component parts of the equipment and replacements and to prior shipment commitments of Ransburg. User shall furnish all labor, material, and equipment necessary for the use of said Process except the equipment to be furnished by Ransburg in accordance with this paragraph.

3. Supervision: Ransburg will furnish supervision necessary for placing its equipment in readiness for operation. Should Ransburg's supervisor make more than one trip to the plant of User or be delayed there for any cause not chargeable to Ransburg, then for each day of such trip or trips or of such delay, User shall pay Ransburg the sum

of Seventy-five Dollars and any necessary transportation expenses incurred thereby.

4. Conversion: Ransburg will grant, upon written request by User, a license to use said Process otherwise than as described in Paragraph 1 unless, in Ransburg's opinion, the requested use involves unsafe practices or impractical conditions or is in conflict with the policies or commitments of Ransburg. Such conversion shall be made only after Ransburg has agreed thereto in writing.

5. Patent Infringement Indemnification: Ransburg agrees to indemnify User (but not in an amount in excess of the total fees paid pursuant to Paragraph 11 hereof) against any liability for infringement of letters patent by said Process if used in accordance with the terms and provisions hereof and to undertake at its expense the defense of any suit brought against User for such infringement, provided User shall promptly notify Ransburg of any such claim of infringement, permit Ransburg to assume the defense thereof, and cooperate with Ransburg in respect thereto and in respect to any necessary changes of equpiment or use thereof.

6. Liability: User agrees that Ransburg shall not be liable to User for any loss, cost, expense, or damage arising from any failure of said Process or equipment to function in any particular manner or to electrostatically detear any particular article or assembly, or for any claim (other than as provided in Paragraph 5) resulting from the use, operation, or condition of the equipment furnished by Ransburg while said equipment is in the possession or custody of User. User further agrees to reimburse Ransburg for any loss, cost, expense, or damage which may be sustained as a result of any liability to third parties for any claim (other than as provided in Paragraph 5) resulting from the use, operation, or condition of the equipment furnished by Ransburg while said equipment is in the possession or custody of User.

Ransburg Electrostatic Detearing Agreement.

This agreement, entered into by and between Ransburg Electro-Coating Corp., an Indiana corporation, having its principal place of business at Indianapolis, Indiana, hereinafter called "Ransburg," and .....

.....

.....

hereinafter called "User," Witnesseth:

Whereas, Ransburg owns certain United States letters patent and inventions all pertaining to and covering methods and apparatus used in the electrostatic detearing of articles, the process so used being referred to as "said Process," has acquired much engineering data and experience pertaining to said Process, is conducting research in that field, has performed a substantial amount of engineering in adapting said Process to commercial use, and has supplied User with the results of said engineering pertinent to User's production; and

Whereas, User desires to use said Process and benefit from Ransburg's engineering;

Now, therefore, it is mutually agreed as follows:

1. License: In consideration of the payment by User of the fees herein provided, Ransburg hereby grants to User, subject to and in accordance with all of the terms and conditions of this agreement and while the same is in effect, a nonexclusive, nonassignable license to use said Process at User's plant in .....,
with one unit as shown in Ransburg's Drawing No. .....,
subject to such changes therein and such further specifications as Ransburg may prescribe, for electrostatically detearing .....,
but said license shall not include the right to use said Process in the coating of piezo-electric devices and magnetic recording and/or reproducing apparatus.

2. Supervision: Ransburg or any of its agents or duly authorized representatives shall, without notice and at any time during User's regular business hours, have access to User's premises where said unit is installed for the purpose of determining the manner in and extent to which User is using said Process so that, to the extent Ransburg deems it desirable, Ransburg may make engineering and/or operating recommendations.

3. Conversion: Upon written request of User and upon terms to be agreeable to both parties, Ransburg will license the use of said Process otherwise than as described in Paragraph 1 unless, in Ransburg's opinion, the requested use involves unsafe practice or impractical conditions or is in conflict with the policies or commitments of Ransburg. Such conversion shall be made only after Ransburg has agreed thereto in writing.

4. Liability: User agrees that Ransburg shall not be liable to User for any loss, cost, expense, or damage arising from any failure of said Process to function in any particular manner or to electrostatically detear any particular article or assembly, or for any claim resulting from the use, operation, or condition of the electrostatic unit with which said Process is used. User further agrees to reimburse Ransburg for any loss, cost, expense, or damage which may be sustained as a result of any liability to third parties for any claim resulting from the use, operation, or condition of the electrostatic unit with which said Process is used.

5. Performance: The performance of the obligations of both parties hereunder is subject to strikes and lockouts, whether in the organization of either party or elsewhere, and to accidents, fires, delays in manufacture or transportation, acts of God, embargoes, or any governmental action, as well as any causes for postponement or non-performance over which the parties have no control; and any failure,

due to any of such causes, of either party to perform any of its obligations herein set forth shall not be considered a violation of this agreement.

6. Termination: User shall have the right to terminate this agreement at any time upon thirty days' written notice to Ransburg, provided User has fulfilled its obligations hereunder. Ransburg shall have the right to terminate this agreement at any time after three years from the date of Ransburg's acceptance hereof upon six months' written notice to User.

In the event User shall fail to perform any of the conditions or obligations of this agreement, and such failure shall continue or recur after written notice thereof from Ransburg, Ransburg may (without prejudice to its rights to recover any amounts owing by User as herein provided or any damages for breach of this agreement) terminate this agreement forthwith. Any delay, concession, or indulgence on the part of Ransburg in enforcing any of its rights on any default shall not be deemed a waiver of such rights.

7. Use of Equipment: User agrees to follow Ransburg's safety and operating recommendations and to maintain Ransburg's equipment in as good condition as when installed, ordinary wear and tear from proper use and operation alone excepted. User agrees that it shall not use or operate Ransburg's equipment with any of the parts or safety devices removed and to reimburse Ransburg for loss of or damage to Ransburg's equipment while in User's possession or custody, ordinary wear and tear from proper use and operation alone excepted.

8. Performance: The performance of the obligations of both parties hereunder is subject to strikes and lockouts, whether in the organization of either party or elsewhere, and to accidents, fires, delays in manufacture or transportation, acts of God, embargoes or any governmental action,

as well as any causes for postponement or non-performance over which the parties have no control; and any failure, due to any of such causes, of either party to perform any of its obligations herein set forth shall not be considered a violation of this agreement.

9. Title: Title to all equipment furnished by Ransburg shall at all times remain in Ransburg, and said equipment shall remain personal property regardless of how it is affixed to the realty. Ransburg shall have at all times, during business hours, the right to enter User's premises for the purpose of determining whether its equipment and said Process are being used as herein provided. User shall not have the right, without the written consent of Ransburg, to (1) lease or grant the right to use the equipment furnished by Ransburg to any person, firm, or corporation, (2) remove it from the plant to which it is delivered for installation, or (3) use it for any purpose or in any manner other than as herein provided. Upon termination of this agreement, User agrees to deliver the equipment furnished by Ransburg, freight prepaid, to Ransburg at Indianapolis, Indiana, in as good condition as when installed, ordinary wear and tear incident to its proper use and operation alone excepted.

10. Termination: User shall have the right to terminate this agreement at any time upon thirty days' written notice to Ransburg, provided User has fulfilled its obligations hereunder and returns Ransburg's equipment prepaid to Ransburg within thirty days after such notification in as good condition as when installed, ordinary wear and tear from proper use and operation alone excepted. Ransburg shall have the right to terminate this agreement at any time after three years from the date of Ransburg's acceptance hereof upon six months' written notice to User.

In the event User shall fail to perform any of the conditions or obligations of this agreement, and such failure

shall continue or recur after written notice thereof from Ransburg, Ransburg may (without prejudice to its rights to recover any amounts owing by User as herein provided or any damages for breach of this agreement) terminate this agreement and take possession of its equipment forthwith; and for that purpose permission is hereby given Ransburg or any of its agents to enter any premises wherein its equipment is located to discover and take possession of its equipment without notice and without being liable to any suit, action, indictment, or other proceedings by User or anyone claiming under it. Any delay, concession, or indulgence on the part of Ransburg in enforcing any of its rights on any default shall not be deemed a waiver of such rights.

11. Fees: User agrees to pay to Ransburg an initial fee of .....

.....

within sixty days after date of shipment of Ransburg's equipment or thirty days after date of installation thereof, whichever occurs earlier. User further agrees to pay Ransburg, on or before the tenth day of each calendar month during the life of this agreement, a monthly fee of Fifty Dollars, which amount is due in any event and is hereinafter referred to as the basic minimum monthly fee, plus an additional .....

.....

for each 200 hours, or fraction thereof, of use of said Process during each such calendar month. Monthly fees under this agreement shall start with the date of installation of Ransburg's equipment or thirty days after the date of shipment thereof from Ransburg's plant, whichever occurs earlier, and the first payment shall be made on or before the tenth of the calendar month following. For the first and last payments of monthly fees under this agreement, the basic minimum monthly fee shall be prorated

according to the portion of the month for which it is payable.

In addition to the above fees, User agrees to pay, or to reimburse Ransburg if it should be obliged to pay, directly or indirectly, any taxes, licenses, or fees imposed by the laws of any State, of any political subdivision, of any municipality, or of any other governmental authority by reason of the installation, possession, use, or location of any equipment furnished by Ransburg pursuant to this agreement. Such sums as may be due under this provision shall be paid separately or added to the invoice for other payments as the law may require or as Ransburg may determine

If User does not request shipment of Ransburg's equipment prior to the expiration of six months after the date of Ransburg's acceptance of this agreement, Ransburg shall have the right, prior to shipment of its equipment, to change the fees and conditions of this agreement to conform to its policy as of the date of such shipment.

During the term of this agreement, the monthly fee specified above and the sum set forth in Paragraph 3 shall from time to time be adjusted commensurately with changes, from the value for May 15, 1950, in the Consumer Price Index, Large Cities Combined, as determined by the Bureau of Labor Statistics of the U. S. Department of Labor, on the 1947-49 base; provided, however, that only a change of at least ten percentage points in the value of said Index shall require any such adjustment.

User agrees to keep permanent books of account from which the correctness of the monthly payments made under this agreement can be verified and agrees that such books of account shall be open to inspection by Ransburg or its duly authorized representatives at any time during User's regular business hours.

12. Execution of Agreement: This agreement sets

forth the entire agreement and understanding between the parties as to the subject matter of this agreement, and no statements, conditions, or representations, either oral or written, made by the parties, their employees, or agents, including conditions or provisions appearing in any purchase order or other instrument issued by User, shall be valid or binding unless contained in a written instrument signed by both parties. Ransburg makes no warranties of any kind, express or implied, except as set forth in this agreement.

All the rights and privileges of Ransburg hereunder shall be extended to and inure to the benefit of the successors in business or assigns of Ransburg upon User being given written notice of the assignment of this agreement to such successors in business or assigns and upon the written acceptance by such successors in business or assigns of all Ransburg's obligations hereunder.

This agreement is submitted in quadruplicate for execution by User. It shall become a contract only upon its execution and acceptance by Ransburg at Ransburg's home office in Indianapolis, Indiana, and shall be effective under the laws of the State of Indiana.

In Witness Whereof, the parties have caused this agreement to be executed by an authorized officer or person effective as of the date of acceptance by Ransburg set forth below.

.....(User)

By.....

(Title)

Executed and accepted this.....day of .....,195.....

Ransburg Electro-Coating Corp. (Ransburg)

By.....

(Title)

Form No. 238.

7. Fees: User agrees to pay to Ransburg an initial fee of .....

.....

within thirty days after date of acceptance of this agreement by Ransburg. User further agrees to pay to Ransburg, on or before the tenth day of each calendar month during the life of this agreement, a monthly fee of Forty Dollars, which amount is due in any event and is hereinafter referred to as the basic minimum monthly fee, plus an additional .....

.....

for each 200 hours, or fraction thereof, of use of said Process during each such calendar month. Monthly fees under this agreement shall start on the date User begins to use said Process under this agreement or thirty days after the date of acceptance of this agreement by Ransburg, whichever occurs earlier, and the first payment shall be made on or before the tenth day of the calendar month following. For the first and last payments of monthly fees under this agreement, the basic minimum monthly fee shall be prorated according to the portion of the month for which it is payable.

During the term of this agreement, the monthly fee specified above shall from time to time be adjusted commensurately with changes, from the value for May 15, 1950, in the Consumer Price Index, Large Cities Combined, as determined by the Bureau of Labor Statistics of the U. S. Department of Labor, on the 1947-49 base; provided, however, that only a change of at least ten percentage points in the value of said Index shall require any such adjustment.

User agrees to keep permanent books of account from which the correctness of the monthly payments made under this agreement can be verified and agrees that such books of account shall be open to inspection by Ransburg or its

duly authorized representatives at any time during User's regular business hours.

8. Execution of Agreement: This agreement sets forth the entire agreement and understanding between the parties as to the subject matter of this agreement, and no statements, conditions, or representations, either oral or written, made by the parties, their employees, or agents, including conditions or provisions appearing in any purchase order or other instrument issued by User, shall be valid or binding unless contained in a written instrument signed by both parties.

All the rights and privileges of Ransburg hereunder shall be extended to and inure to the benefit of the successors in business or assigns of Ransburg upon User being given written notice of the assignment if this agreement to such successors in business or assigns and upon the written acceptance by such successors in business or assigns of all Ransburg's obligations hereunder.

This agreement is submitted in quadruplicate for execution by User. It shall become a contract only upon its execution and acceptance by Ransburg at Ransburg's home office in Indianapolis, Indiana, and shall be effective under the laws of the State of Indiana.

In Witness Whereof, the parties have caused this agreement to be executed by an authorized officer or person effective as of the date of acceptance by Ransburg set forth below.

.....(User)

By.....

(Title)

Executed and accepted this.....day of .....,195....

Ransburg Electro-Coating Corp. (Ransburg)

By.....

(Title)

Form No. 239.

Serial No.

Ransburg Electrostatic Spray-Process Agreement.

This agreement, entered into by and between Ransburg Electro-Coating Corp., an Indiana corporation, having its principal place of business at Indianapolis, Indiana, hereinafter called "Ransburg," and

.....

.....

hereinafter called "User," Witnesseth:

Whereas, Ransburg is the owner of, or otherwise has the right to grant licenses under, certain United States letters patent and inventions all pertaining to and covering methods and apparatus used in the electrostatic coating of articles, the process so used being referred to as "said Process," has acquired much engineering data and experience pertaining to said Process, is conducting research in that field, has performed a substantial amount of engineering in adapting said Process to commercial use, has supplied User with the results of said engineering pertinent to User's production, and has designed special equipment therefor; and

Whereas, User desires to use said Process and benefit from Ransburg's engineering and requests that Ransburg furnish certain special equipment hereinbefore described;

Now, therefore, it is mutually agreed as follows:

1. License: In consideration of the payment by User of the fees herein provided, Ransburg hereby grants to User, subject to and in accordance with all of the terms and conditions of this agreement and while the same is in effect, a nonexclusive, nonassignable license to use said Process at User's plant in ....., with one unit as shown in Ransburg's drawing No. ....., subject to such changes therein and such further specifi-

cations as Ransburg may prescribe, for electrostatically spraying ..... but said license shall not include the right to the said Process in the Manufacture of abrasive articles, flock-coated articles, or articles coated with fiber-shaped particles.

2. Equipment: Ransburg will furnish User, for its use of said Process, one voltage pack and electrical controls, electrodes and insulating supports therefor, and high-voltage lead-in means, which will be shipped prepaid to User's aforesaid plant upon request of User. As parts of Ransburg's equipment become defective, User agrees to return prepaid all such defective parts to Ransburg promptly. Ransburg will furnish replacements, without charge, of any such defective parts which become defective as a result of ordinary wear and tear from proper use and operation, provided such parts are returned to Ransburg within thirty days after they become defective. If said defective parts become defective from improper use, operation, or negligence of User or if said defective parts are not returned to Ransburg within said thirty-day period, User agrees to pay Ransburg Ransburg's standard charges for furnishing replacements for said defective parts. The furnishing of equipment and replacements by Ransburg is subject to the availability to Ransburg of the necessary component parts of the equipment and replacements and to prior shipment commitments of Ransburg. User shall furnish all labor, materials, and equipment necessary for the use of said Process except the equipment to be furnished by Ransburg in accordance with this paragraph.

3. Supervision: Ransburg will furnish supervision necessary for placing its equipment in readiness for operation. Should Ransburg's supervisor make more than one trip to the plant of User or be delayed there for any cause not chargeable to Ransburg, then for each day of

such trip or trips or of such delay, User shall pay Ransburg the sum of Seventy-five Dollars and any necessary transportation expenses incurred thereby.

4. Conversion: Ransburg will grant, upon written request by User, a license to use said Process otherwise than as described in Paragraph 1 unless, in Ransburg's opinion, the requested use involves unsafe practices or impractical conditions or is in conflict with the policies or commitments of Ransburg. Such conversion shall be made only after Ransburg has agreed thereto in writing.

5. Patent Infringement Indemnification: Ransburg agrees to indemnify User (but not in an amount in excess of the total fees paid pursuant to Paragraph 11 hereof) against any liability for infringement of letters patent by said Process if used in accordance with the terms and provisions hereof and to undertake at its expense the defense of any suit brought against User for such infringement, provided User shall promptly notify Ransburg of any such claim of infringement, permit Ransburg to assume the defense thereof, and cooperate with Ransburg in respect thereto and in respect to any necessary changes of equipment or use thereof.

6. Liability: User agrees that Ransburg shall not be liable to User for any loss, cost, expense, or damage arising from any failure of said Process or equipment to function in any particular manner or to electrostatically spray any particular article or assembly, or for any claim (other than as provided in Paragraph 5) resulting from the use, operation, or condition of the equipment furnished by Ransburg while said equipment is in the possession or custody of User. User further agrees to reimburse Ransburg for any loss, cost, expense, or damage which may be sustained as a result of any liability to third parties for any claim (other than as provided in Paragraph 5) resulting from the use, operation, or condition of the equipment

furnished by Ransburg while said equipment is in the possession or custody of User.

7. Use of Equipment. User agrees to follow Ransburg's safety and operating recommendations and to maintain Ransburg's equipment in as good condition as when installed, ordinary wear and tear from proper use and operation alone excepted. User agrees that it shall not use or operate Ransburg's equipment with any of the parts or safety devices removed and to reimburse Ransburg for loss of or damage to Ransburg's equipment while in User's possession or custody, ordinary wear and tear from proper use and operation alone excepted.

8. Performance: The performance of the obligation of both parties hereunder is subject to strikes and lockouts, whether in the organization of either party or elsewhere, and to accidents, fires, delays in manufacture or transportation, acts of God, embargoes or any governmental action, as well as any causes for postponement or non-performance over which the parties have no control; and any failure, due to any of such causes, of either party to perform any of its obligations herein set forth shall not be considered a violation of this agreement.

9. Title: Title to all equipment furnished by Ransburg shall at all times remain in Ransburg and said equipment shall remain personal property regardless of how it is affixed to the realty. Ransburg shall have at all times, during business hours, the right to enter User's premises for the purpose of determining whether its equipment and said Process are being used as herein provided. User shall not have the right, without the written consent of Ransburg, to (1) lease or grant the right to use the equipment furnished by Ransburg to any person, firm, or corporation, (2) remove it from the plant to which it is delivered for installation, or (3) use it for any purpose or in any manner other than as herein provided. Upon termi-

nation of this agreement, User agrees to deliver the equipment furnished by Ransburg, freight prepaid, to Ransburg at Indianapolis, Indiana, in as good condition as when installed, ordinary wear and tear incident to its proper use and operation alone excepted.

10. Termination: User shall have the right to terminate this agreement at any time upon thirty days' written notice to Ransburg, provided User has fulfilled its obligations hereunder and returns Ransburg's equipment to Ransburg prepaid within thirty days after such notification in as good condition as when installed, ordinary wear and tear from proper use and operation alone excepted. Ransburg shall have the right to terminate this agreement at any time after three years from the date of Ransburg's acceptance hereof upon six months' written notice to User.

In the event User shall fail to perform any of the conditions or obligations of this agreement, and such failure shall continue or recur after written notice thereof from Ransburg, Ransburg may (without prejudice to its right to recover any amounts owing by User as herein provided or any damages for breach of this agreement) terminate this agreement and take possession of its equipment forthwith, and for that purpose permission is hereby given Ransburg or any of its agents to enter any premises wherein its equipment is located, to discover and take possession of its equipment without notice and without being liable to any suit, action, indictment, or other proceedings by User or anyone claiming under it. Any delay, concession, or indulgence on the part of Ransburg in enforcing any of its rights on any default shall not be deemed a waiver of such rights.

11. Fees: User agrees to pay to Ransburg an initial fee of .....

.....

within sixty days after date of shipment of Ransburg's

equipment or thirty days after date of installation thereof, which ever occurs earlier. User further agrees to pay to Ransburg, on or before the tenth day of each calendar month during the life of this agreement, a basic minimum monthly fee of One Hundred Dollars ($100.00), which fee is due in any event, and in addition thereto a monthly fee based on the cost to User of the coating material (including all its ingredients) used in said unit during the preceding calendar month in accordance with the following schedule:

Monthly Cost of Coating Material	Monthly Fee
Less than $4,000.00	10% of Cost
$4,000.00 to $8,000.00	$400.00 plus 5% of Cost over $4,000.00
In Excess of $8,000.00	$600.00

Monthly fees under this agreement shall start with the date of installation of Ransburg's equipment or thirty days after the date of shipment thereof from Ransburg's plant, whichever occurs earlier, and the first payment shall be made on or before the tenth day of the calendar month following. For the first and last payments of monthly fees under this agreement, the basic minimum monthly fee specified above shall be prorated according to the portion of the month for which it is payable.

In addition to the above fees, User agrees to pay, or to reimburse Ransburg if it should be obliged to pay, directly or indirectly, any taxes, licenses, or fees imposed by the laws of any State, or any political subdivision, of any municipality, or of any other governmental authority by reason of the installation, possession, use, or location of any equipment furnished by Ransburg pursuant to this agreement. Such sums as may be due under this provision shall be paid separately or added to the invoice for other payments as the law may require or as Ransburg may determine.

If User does not request shipment of Ransburg's equipment prior to the expiration of six months after the date of Ransburg's acceptance of this agreement, Ransburg shall have the right, prior to shipment of its equipment, to change the fees and conditions of this agreement to conform to its policy as of the date of such shipment.

During the term of this agreement, the basic minimum monthly fee specified above, the sums set forth in the above columns entitled "Monthly Cost of Coating Material" and "Monthly Fee," and the sum set forth in Paragraph 3 shall from time to time be adjusted commensurately with changes, from the value for May 15, 1950, in the Consumer Price Index, Large Cities Combined, as determined by the Bureau of Labor Statistics of the U. S. Department of Labor, on the 1947-49 base; provided, however, that only a change of at least ten percentage points in the value of said Index shall require any such adjustment.

Upon request of Ransburg, User shall supply Ransburg with a written report showing the monthly quantity of coating material used in said unit and the cost to User of said coating material. User agrees to keep permanent books of account from which the correctness of said written reports can be verified and agrees that such books of account shall be open to inspection by Ransburg or its duly authorized representatives at any time during User's regular business hours.

12. Execution of Agreement: This agreement sets forth the entire agreement and understanding between the parties as to the subject matter of this agreement, and no statements, conditions, or representations, either oral or written, made by the parties, their employees, or agents, including conditions or provisions appearing in any purchase order or other instrument issued by User, shall be valid or binding unless contained in a written instrument signed by both parties. Ransburg makes no warranties of any

kind, express or implied, except as set forth in this agreement.

All the rights and privileges of Ransburg hereunder shall be extended to and inure to the benefit of the successors in business or assigns of Ransburg upon User being given written notice of the assignment of this agreement to such successors in business or assigns and upon the written acceptance by such successors in business or assigns of all Ranburg's obligation hereunder.

This agreement is submitted in quadruplicate for execution by User. It shall become a contract only upon its execution and acceptance by Ransburg at Ransburg's home office in Indianapolis, Indiana, and shall be effective under the laws of the State of Indiana.

In Witness Whereof, the parties have caused this agreement to be executed by an authorized officer or person effective as of the date of acceptance by Ransburg set forth below.

Executed and accepted this ..... day of ..... 195....

..... (User)

By .....

(Title)

Ransburg Electro-Coating Corp.
(Ransburg)

By .....

(Title)

Form No. 138.

Ransburg Electrostatic Spray Process Agreement.

This agreement, entered into by and between Ransburg Electro-Coating Corp., an Indiana corporation, having its principal place of business at Indianapolis, Indiana, hereinafter called "Ransburg," and .....

.....

hereinafter called "User," Witnesseth:

Whereas, Ransburg is the owner of, or otherwise has the right to grant licenses under, certain United States letters patent and inventions all pertaining to and covering methods and apparatus used in the electrostatic coating of articles, the process so used being referred to as "said Process," has acquired much engineering data and experience pertaining to said Process, is conducting research in that field, has performed a substantial amount of engineering in adapting said Process to commercial use, and has supplied User with the results of said engineering pertinent to User's production; and

Whereas, User desires to use said Process and benefit from Ransburg's engineering;

Now, therefore, it is mutually agreed as follows:

1. License: In consideration of the payment by User of the fees herein provided, Ransburg hereby grants to User, subject to and in accordance with all of the terms and conditions of this agreement and while the same is in effect, a nonexclusive, nonassignable license to use said Process at User's plant in .....,
with one unit as shown in Ransburg's Drawing No. .....,
subject to such changes therein and such further specifications as Ransburg may prescribe, for electrostatically spraying .....,
but said license shall not include the use of said Process in the manufacture of abrasive articles, flock-coated articles, or articles coated with fiber-shaped particles.

2. Supervision: Ransburg or any of its agents or duly authorized representatives shall, without notice and at any time during User's regular business hours, have access to User's premises where said unit is installed for the purpose of determining the manner in and extent to which User is using said Process so that, to the extent Ransburg deems it desirable, Ransburg may make engineering and/or operating recommendations.

3. Conversion: Upon written request of User and upon terms to be agreeable to both parties, Ransburg will license the use of said Process otherwise than as described in Paragraph 1 unless, in Ransburg's opinion, the requested use involves unsafe practices or impractical conditions or is in conflict with the policies or commitments of Ransburg. Such conversion shall be made only after Ransburg has agreed thereto in writing.

4. Liability: User agrees that Ransburg shall not be liable to User for any loss, cost, expense, or damage arising from any failure of said Process to function in any particular manner or to electrostatically coat any particular article or assembly, or for any claim resulting from the use, operation, or condition of the electrostatic unit with which said Process is used. User further agrees to reimburse Ransburg for any loss, cost, expense, or damage which may be sustained as a result of any liability to third parties for any claim resulting from the use, operation, or condition of the electrostatic unit with which said Process is used.

5. Performance: The performance of the obligations of both parties hereunder is subject to strikes and lockouts, whether in the organization of either party or elsewhere, and to accidents, fires, delays in manufacture or transportation, acts of God, embargoes, or any governmental action, as well as any causes for postponement or non-performance over which the parties have no control; and any failure, due

to any of such causes, of either party to perform any of its obligations herein set forth shall not be considered a violation of this agreement.

6. Termination: User shall have the right to terminate this agreement at any time upon thirty days' written notice to Ransburg, provided User has fulfilled its obligations hereunder. Ransburg shall have the right to terminate this agreement at any time after three years from the date of Ransburg's acceptance hereof upon six months' written notice to User.

In the event User shall fail to perform any of the conditions or obligations of this agreement, and such failure shall continue or recur after written notice thereof from Ransburg, Ransburg may (without prejudice to its rights to recover any amounts owing by User as herein provided or any damages for breach of this agreement) terminate this agreement forthwith. Any delay, concession, or indulgence on the part of Ransburg in enforcing any of its rights on any default shall not be deemed a waiver of such rights.

7. Fees: User agrees to pay to Ransburg an initial fee of .....

.....

within thirty days after the date of acceptance of this agreement by Ransburg. User further agrees to pay Ransburg, on or before the tenth day of each calendar month during the life of this agreement,

Monthly fees under this agreement shall start on the date User begins to use said Process under this agreement or thirty days after the date of acceptance of this agreement by Ransburg, whichever occurs earlier, and the first payment shall be made on or before the tenth day of the calendar month following. For the first and last payments of monthly fees under this agreement, the basic minimum

monthly fee shall be prorated according to the portion of the month for which it is payable.

In addition to the above fees, User agrees to pay or to reimburse Ransburg if it should be obliged to pay, directly or indirectly, any taxes, licenses, or fees imposed by the laws of any State, of any political subdivision, of any municipality, or of any other governmental authority by reason of the use or operation of said Process or the license granted under this agreement. Such sums as may be due under this provision shall be paid separately or added to the invoice for other payments as the law may require or as Ransburg may determine.

During the term of this agreement, the basic minimum monthly fee specified above shall from time to time be adjusted commensurately with changes, from the value for May 15, 1950, in the Revised Consumer Price Index, Large Cities Combined, as determined by the Bureau of Labor Statistics of the U. S. Department of Labor, on the 1947-49 base; provided, however, that only a change of at least ten percentage points in the value of said Index shall require any such adjustment.

User agrees to keep permanent books of account from which the correctness of the monthly payments made under this agreement can be verified and agrees that such books of account shall be open to inspection by Ransburg or its duly authorized representatives at any time during User's regular business hours.

8. Execution of Agreement: This agreement sets forth the entire agreement and understanding between the parties as to the subject matter of this agreement, and no statements, conditions, or representations, either oral or written, made by the parties, their employees, or agents, including conditions or provisions appearing in any purchase order or other instrument issued by User, shall be valid or binding unless contained in a written instrument

signed by both parties. Ransburg makes no warranties of any kind, express or implied, except as set forth in this agreement.

All the rights and privileges of Ransburg hereunder shall be extended to and inure to the benefit of the successors in business or assigns of Ransburg upon User being given written notice of the assignment of this agreement to such successors in business or assigns and upon the written acceptance by such successors in business or assigns of all Ransburg's obligations hereunder.

This agreement is submitted in quadruplicate for execution by User. It shall become a contract only upon its execution and acceptance by Ransburg at Ransburg's home office in Indianapolis, Indiana, and shall be effective under the laws of the State of Indiana.

In Witness Whereof, the parties have caused this agreement to be executed by an authorized officer or person effective as of the date of acceptance by Ransburg set forth below.

Executed and accepted this ..... day of ....., 195....

Ransburg Electro-Coating Corp.
(Ransburg)

By .....
(Title)

..... (User)

By .....
(Title)

Form No. 137.

DEFENDANT'S EXHIBIT NO. 27.

Ransburg Electro-Coating Corp.
Indianapolis, Indiana.

May 13, 1954

Sales Bulletin No. 130.

To: RHS EJS MFP GEK GR
EPM HEM EO EMR DCH
JEM DEC MR HJR

Subject: Pricing Guide For No. 2 Spray Process.

Gentlemen:

The attached is a new pricing schedule for the No. 2 Process. The amounts shown are intended merely as a guide for making preliminary estimates and no price should be considered as a firm quotation until confirmed by the Home Office.

The basic minimum monthly fee with equipment will be $175.00 per unit.*

Please be reminded that you are to advise all of your prospective customers that they may obtain a license without our equipment for an initial fee of $4100.00. The basic minimum monthly fee without our equipment will have to be refigured by our cost accountants. You will be advised of this when the correct figure is determined. In the meantime, if someone wishes to proceed without equipment, an equitable monthly fee arrangement will be determined.

---

* Please note carefully the new definition of a unit:
A unit is comprised of that equipment associated with one pack (not more than 4 triples or 4 discs).

All agreements issued in 1953 and up to May 13, 1954, will be honored if properly signed and in our hands by July 1, 1954, and provided the customer gives us instructions to ship prior to October 1, 1954.

Yours very truly,

Harold

Harold P. Ransb.. g.

HPR:eh

Strictly Confidential.

No. 2 Process.

Approximate Pricing Schedule:

Triples*	Pumps	Initial	Discs	Pumps	Initial
1	1 (Std)	8,000	1	1	7,300
2	1 (Std)	8,900	2	1	7,900
3	1 (Ins)	11,000	2	2	9,200
3	2 (Std)	10,900	3	3	10,900
4	1 (Ins)	11,900	4	2	10,900
4	2 (Std)	11,800			

If insulated pumps required where standard specified, add $750 for each pump.

Add for reciprocator:

36" or less..... $ 500

Between 36" & 60".... 1000

Above 60" 1500

Form No. PF54

5-13-54

* For use with single phase triples only.

Definition of a "Unit".

A unit is comprised of that equipment associated with one pack (not more than 4 triples or 4 discs).

DEFENDANT'S EXHIBIT NO. 28.

Ransburg Electro-Coating Corp.
Indianapolis, Indiana.

April 4, 1955

Sales Bulletin No. 148.

To: RHS EJS MFP HPR DCH
EPM HEM RO HJR PEABODY
JEM DEC. MR GR

Subject: Regarding Bulletin No. 147, Dated January 10, 1955 Explaining New Agreement Forms.

Gentlemen:

Attached, for your further information, is one sample copy each of the following agreement forms: Form No. 437, No. 2 License Agreement without equipment; Form No. 140, No. 1 License and Equipment Agreement; Form No. 141, No. 1 License Agreement without equipment; Form No. 241, Detearing License and Equipment Agreement; and Form No. 242, Detearing License Agreement without equipment. Forms Nos. 141, 242, and 437 are our current forms in the event any licensees desire a license only and wish to supply their own equipment or procure it from any other source.

E. M. Ransburg.

EMR/bc

Serial No. .....

Ransburg.

Electrostatic Spray Process Agreement.

This agreement, entered into by and between Ransburg Electro-Coating Corp., an Indiana corporation, having its principal place of business at Indianapolis, Indiana, hereinafter called "Ransburg," and .....

.....

.....

hereinafter called "User," Witnesseth:

Whereas, Ransburg is the owner of, or otherwise has the right to grant licenses under, certain United States letters patent and inventions pertaining to and covering methods and apparatus used in the electrostatic coating of articles, the process so used being referred to as "said Process," has acquired much engineering data and experience pertaining to said Process, is conducting research in that field, has performed a substantial amount of engineering in adapting said Process to commercial use, has supplied User with results of said engineering pertinent to User's production, and has designed special equipment therefor; and

Whereas, User desires to use said Process and benefit from Ransburg's engineering and requests that Ransburg furnish certain special equipment hereinbelow described;

Now, therefore, it is mutually agreed as follows:

1. License: In consideration of the payment by User of the fees herein provided, Ransburg hereby grants to User, subject to and in accordance with all of the terms and conditions of this agreement and while the same is in effect, a nonexclusive, nonassignable license to use said Process at User's plant in .....

....., with ..... as shown in

Ransburg's Drawing No. ....., subject to such changes therein and such further specifications as Ransburg may prescribe, for electrostatically spraying .....

.....

but said license shall not include the right to use said Process in the manufacture of abrasive articles, flock-coated articles, or articles coated with fiber-shaped particles.

2. Equipment and Supervision: Ransburg will furnish User, for its use of said Process, one voltage pack and electrical controls, electrodes and insulating supports therefor, and high voltage lead-in means, which will be shipped prepaid to User's aforesaid plant upon request of User. As parts of Ransburg's equipment become defective, User agrees to return prepaid to Ransburg promptly all such defective parts. Ransburg will furnish replacements, without charge, of any such defective parts which become defective as a result of ordinary wear and tear from proper use and operation, provided such parts are returned to Ransburg within thirty days after they become defective. If defective parts become defective from improper use, operation, or negligence of User, or if defective parts are not returned to Ransburg within said thirty-day period, User agrees to pay Ransburg Ransburg's standard charges for furnishing replacements for defective parts.

Ransburg will furnish supervision necessary for placing its equipment in readiness for operation. Should Ransburg's supervisor make more than one trip to the plant of User or be delayed there for any cause not chargeable to Ransburg, then for each day of such trip or trips or of such delay, User shall pay Ransburg the sum of Seventy-five Dollars and any necessary transportation expenses incurred thereby.

User shall furnish all labor, materials, and equipment

for the use of said Process except the equipment and supervision to be furnished by Ransburg in accordance with this paragraph.

The furnishing of equipment, replacements, and supervision by Ransburg is subject to the availability to Ransburg of the necessary component parts of the equipment and replacements, to prior shipment commitments of Ransburg, to strikes and lockouts, whether in the organization of Ransburg or elsewhere, and to accidents, fires, delays in manufacture, acts of God, court injunctions, or any governmental action, as well as any causes for postponement or non-performance over which Ransburg has no control; and any failure, due to any such causes, of Ransburg to perform any of its obligations herein set forth shall not be considered a breach of this agreement.

The first period for which monthly fees are payable shall commence with the date of installation of Ransburg's equipment, or thirty days after the date of shipment thereof by Ransburg, whichever occurs earlier. With respect to any fractional calendar month for which monthly fees are payable, the basic minimum monthly fee shall be prorated according to the portion of the month for which it is payable. Within ten days after the end of each calendar month for which monthly fees are payable, User will furnish to Ransburg upon forms furnished by Ransburg, or, in the absence thereof, upon any reasonable adequate form, a written report setting forth in reasonable detail the information upon which the aforesaid additional monthly fee may be computed, and shall pay to Ransburg at its office at Indianapolis, Indiana, the monthly fees payable for said month. User agrees to keep permanent books of account from which the correctness of said written reports can be verified and agrees that such books of account shall be open to inspection by Ransburg or its duly authorized

representatives at any time during User's regular business hours.

In addition to the above fees, User agrees to pay, or to reimburse Ransburg if it should be obliged to pay, directly or indirectly, any taxes, licenses, or fees imposed by the laws of any State, of any political subdivision, of any municipality, or of any other governmental authority by reason of the installation, possession, use, or location of any equipment furnished by Ransburg or by reason of the furnishing of any services by Ransburg pursuant to this agreement. Such sums as may be due under this provision shall be paid separately or added to the invoice for other payments as the law may require or as Ransburg may determine.

If User does not request shipment of Ransburg's equipment prior to the expiration of six months after the date of Ransburg's acceptance of this agreement, Ransburg shall have the right, prior to shipment of its equipment, to change the fees and conditions of this agreement to conform to its policy as of the date of such shipment.

During the term of this agreement, the basic minimum monthly fee specified above, the sums set forth in the above columns entitled "Monthly Cost of Coating Material" and "Monthly Fee," and the sum set forth in Paragraph 2 may from time to time be adjusted commensurately with changes, from the value for May, 1950, in the Consumer Price Index, Large Cities Combined, All Items, as determined by the Bureau of Labor Statistics of the U. S. Department of Labor, on the 1947-49 base, or any successor thereto; provided, however, no such adjustment shall be made unless a change of at least ten percentage points has occurred in said Index prior to each such adjustment.

8. Execution of Agreement: This agreement sets forth the entire agreement and understanding between the parties as to the subject matter of this agreement, and no state-

ments, conditions, or representations, either oral or written, made by the parties, their employees, or agents, including conditions or provisions appearing in any purchase order or other instrument issued by User, shall be valid or binding unless contained in a written instrument signed by both parties. Ransburg makes no warranties of any kind, express or implied, except as set forth in this agreement.

All the rights and privileges of Ransburg hereunder shall be extended to and inure to the benefit of the successors in business or assigns of Ransburg upon User being given written notice of the assignment of this agreement to such successors in business or assigns and upon the written acceptance by such successors in business or assigns of all Ransburg's obligations hereunder.

This agreement consisting of three pages is submitted in quadruplicate for execution by User. It shall become a contract only upon its execution and acceptance by Ransburg at Ransburg's home office in Indianapolis, Indiana, and shall be effective under the laws of the State of Indiana.

In Witness Whereof, the parties have caused this agreement to be executed by an authorized officer or person effective as of the date of acceptance by Ransburg set forth below.

Executed and accepted by Ransburg this ..... day of ....., 195....

.....(User)

By .....

(Title)

Ransburg Electro-Coating Corp.
(Ransburg),

By.....

140-3 (Title)

Serial No. .....

Ransburg.

Electrostatic Spray Process Agreement.

This agreement, entered into by and between Ransburg Electro-Coating Corp., an Indiana corporation having its principal place of business at Indianapolis, Indiana, hereinafter called "Ransburg," and .....

.....

.....

hereinafter called "User," Witnesseth:

Whereas, Ransburg is the owner of, or otherwise has the right to grant licenses under, certain United States letters patent and inventions pertaining to and covering methods and apparatus used in electrostatically depositing liquid spray particles atomized with the use of compressed air the process so used being referred to as "said Process," has acquired much engineering data and experience pertaining to said Process, is conducting research in that field, has performed a substantial amount of engineering in adapting said Process to commercial use, has supplied User with results of said engineering pertinent to User's production;

Whereas, User desires to use said Process and benefit from Ransburg's engineering;

Now, therefore, it is mutually agreed as follows:

1. License: In consideration of the payment by User of the fees herein provided, Ransburg hereby grants to User, subject to and in accordance with all of the terms and conditions of this agreement and while the same is in effect, a nonexclusive, nonassignable license to use said Process at User's plant in .....

....., with ..... as shown in

Ransburg's Drawing No. ....., subject to such changes therein and such further specifications as Ransburg may prescribe, for electrostatically spraying .....

.....

but said license shall not include the right to use said Process in the manufacture of abrasive articles, flock-coated articles, or articles coated with fiber-shaped particles.

Supervision: Ransburg or any of its agents or duly authorized representatives shall have access without notice and at any time during User's regular business hours, to User's premises where said unit or units are installed for the purpose of determining the manner in and extent to which User is using said Process so that, to the extent Ransburg deems it desirable, Ransburg may make engineering and/or operating recommendations.

3. Liability: User agrees that Ransburg shall not be liable to User for any loss, cost, expense, or damage resulting from any failure of said Process to function in any particular manner or to electrostatically coat any particular article or assembly or resulting from the presence, use, operation or condition of the electrostatic unit or units with which said Process is used or resulting from any act or omission of Ransburg's employees or agents while on the premises of User. Also, User agrees to indemnify Ransburg for any loss, cost, expense, or damage Ransburg may sustain because of any claims by third parties resulting from the presence, use, operation or condition of the electrostatic unit or units with which said Process is used or resulting from any act or omission of Ransburg's employees or agents while on the premises of User.

4. Termination: User shall have the right to terminate this agreement at any time upon thirty days' written notice to Ransburg, provided User has fulfilled its obligations hereunder. Ransburg shall have the right to terminate

this agreement at any time after three years from the date of Ransburg's acceptance hereof upon six months' written notice to User.

In the event User shall fail to perform any of the conditions or obligations of this agreement, and such failure shall continue to recur after written notice thereof from Ransburg, Ransburg may (without prejudice to its right to recover any amounts owing by User as herein provided or any damages for breach of this agreement) terminate this agreement forthwith. Any delay, concession, or indulgence on the part of Ransburg in enforcing any of its rights on any default shall not be deemed a waiver of such rights.

5. Fees: User agrees to pay to Ransburg an initial fee of .....

.....

within thirty days after date of acceptance of this agreement by Ransburg. For each calendar month during which this agreement is in effect, User also agrees to pay to Ransburg monthly fees consisting of the following: (1) a basic minimum monthly fee of Eighty Dollars, which shall be payable regardless of whether said Process is used, or to what extent it is used; and (2) an additional monthly fee based upon the cost to User of the coating material (including all of its ingredients) used in said unit or units during said month, in accordance with the following schedule:

Monthly Cost of Coating Material	Monthly Fee
Less than $4,000.00	10% of Cost
$4,000.00 to $8,000.00	$400.00 plus 5% of Cost of over $4,000.00
In Excess of $8,000.00	$600.00

The first period for which monthly fees are payable shall commence with the date User begins to use said Process under this agreement or thirty days after the date of acceptance of this agreement by Ransburg, whichever occurs earlier. With respect to any fractional calendar month for which monthly fees are payable, the basic minimum monthly fee shall be prorated according to the portion of the month for which it is payable. Within ten days after the end of each calendar month for which monthly fees are payable, User will furnish to Ransburg upon forms furnished by Ransburg, or, in the absence thereof, upon any reasonably adequate form, a written report setting forth in reasonable detail the information upon which the aforesaid additional monthly fee may be computed, and shall pay to Ransburg at its office at Indianapolis, Indiana, the monthly fees payable for said month. User agrees to keep permanent books of account from which the correctness of said written reports can be verified and agrees that such books of account shall be open to inspection by Ransburg or its duly authorized representatives at any time during User's regular business hours.

In addition to the above fees, User agrees to pay, or to reimburse Ransburg if it should be obliged to pay, directly or indirectly, any taxes, licenses, or fees imposed by the laws of any State, of any political subdivision, of any municipality, or of any other governmental authority by reason of the use or operation of said Process or the license granted under this agreement. Such sums as may be due under this provision shall be paid separately or added to the invoice for other payments as the law may require or as Ranburg may determine.

During the terms of this agreement, the basic minimum monthly fee specified above and the sums set forth in the above columns entitled "Monthly Cost of Coating Material" and "Monthly Fee," may from time to time be

adjusted commensurately with changes, from the value for May, 1950, in the Consumer Price Index, Large Cities Combined, All Items, as determined by the Bureau of Labor Statistics of the U. S. Department of Labor, on the 1947-49 base, or any successor thereto; provided, however, no such adjustment shall be made unless a change of at least ten percentage points has occurred in said Index prior to each such adjustment.

6. Execution of Agreement: This agreement sets forth the entire agreement and understanding between the parties as to the subject matter of this agreement, and no statements, conditions, or representations, either oral or written, made by the parties, their employees, or agents, including conditions or provisions appearing in any purchase order or other instrument issued by User, shall be valid or binding unless contained in a written instrument signed by both parties. Ransburg makes no warranties of any kind, express or implied, except as set forth in this agreement.

All the rights and privileges of Ransburg hereunder shall be extended to and inure to the benefit of the successors in business or assigns of Ransburg upon User being given written notice of the assignment of this agreement to such successors in business or assigns and upon the written acceptance by such successors in business or assigns of all Ransburg's obligations hereunder.

This agreement consisting of two pages is submitted in quadruplicate for execution by User. It shall become a contract only upon its execution and acceptance by Ransburg at Ransburg's home office in Indianapolis, Indiana, and shall be effective under the laws of the State of Indiana.

In Witness Whereof, the parties have caused this agreement to be executed by an authorized officer or person effective as of the date of acceptance by Ransburg set forth below.

Executed and accepted by Ransburg this ..... day of ....., 195....

.....(User)

By.....

(Title)

Ransburg Electro-Coating Corp. (Ransburg),

By .....

(Title)

Serial No.....

Ransburg

Electrostatic Detearing Agreement.

This agreement, entered into by and between Ransburg Electro-Coating Corp., an Indiana corporation, having its principal place of business at Indianapolis, Indiana, hereinafter called "Ransburg," and .....

.....,

hereinafter called "User," Witnesseth:

Whereas, Ransburg owns certain United States letters patent and inventions pertaining to and covering methods and apparatus used in the electrostatic detearing of articles, the process so used being referred to as "said Process," has acquired much engineering data and experience pertaining to said Process, is conducting research in that field, has performed a substantial amount of engineering in adapting said Process to commercial use, has supplied User with results of said engineering pertinent to User's production, and has designed special equipment therefor; and

Whereas, User desires to use said Process and benefit

from Ransburg's engineering and requests that Ransburg furnish certain special equipment hereinbefore described;

Now, therefore, it is mutually agreed as follows:

1. License: In consideration of the payment by User of the fees herein provided, Ransburg hereby grants to User, subject to and in accordance with all of the terms and conditions of this agreement and while the same is in effect, a nonexclusive, nonassignable license to use said Process at User's plant in ....., with ..... as shown in Ransburg's Drawing No. ....., subject to such changes therein and such further specifications as Ransburg may prescribe, for electrostatically detearing .....

.....,

but said license shall not include the right to use said Process in the coating of piezo-electric devices and magnetic recording and/or reproducing apparatus.

2. Equipment and Supervision: Ransburg will furnish User, for its use of said Process, one voltage pack and electrical controls, electrodes and insulating supports therefor, and high voltage lead-in means, which will be shipped prepaid to User's aforesaid plant upon request of User. As parts of Ransburg's equipment become defective, User agrees to return prepaid to Ransburg promptly all such defective parts. Ransburg will furnish replacements, without charge, of any such defective parts which become defective as a result of ordinary wear and tear from proper use and operation, provided such parts are returned to Ransburg within thirty days after they become defective. If defective parts become defective from improper use, operation, or negligence of User or if defective parts are not returned to Ransburg within said thirty-day period, User agrees to pay Ransburg Ransburg's standard charges for furnishing replacements for defective parts.

Ransburg will furnish supervision necessary for placing

its equipment in readiness for operation. Should Ransburg's supervision make more than one trip to the plant of User or be delayed there for any cause not chargeable to Ransburg; then for each day of such trip or trips or of such delay, User shall pay Ransburg the sum of Seventy-five Dollars and any necessary transportation expenses incurred thereby.

User shall furnish all labor, materials, and equipment necessary for the use of said Process except the equipment and supervision to be furnished by Ransburg in accordance with this paragraph.

The furnishing of equipment, replacement and supervision by Ransburg is subject to the availability to Ransburg of the necessary component parts of the equipment and replacements, to prior shipment commitments of Ransburg, to strikes and lockouts, whether in the organization of Ransburg or elsewhere, and to accidents, fires, delays in manufacture or transportation, acts of God, court injunctions, or any governmental action, as well as any causes for postponement or non-performance over which Ransburg has no control; and any failure, due to any of such causes, of Ransburg to perform any of its obligations herein set forth shall not be considered a breach of this agreement.

3. Title and Use of Equipment: Title to all equipment furnished by Ransburg including replacements shall at all times remain in Ransburg, and said equipment shall remain personal property regardless of how it is affixed to the realty. Ransburg shall have at all times, during business hours, the right to enter User's premises for the purpose of determining whether its equipment and said Process are being used as herein provided. User shall not have the right, without the written consent of Ransburg, to (1) lease or grant the right to use the equipment furnished by Ransburg to any person, firm, or corporation, (2) remove it from the plant to which it is delivered for installa-

tion, or (3) use it for any purpose or in any manner other than as herein provided.

User agrees that it shall not use or operate Ransburg's equipment with any of the parts or safety devices removed, that it shall follow Ransburg's safety and operating recommendations, and that it shall maintain Ransburg's equipment in as good condition as when installed, ordinary wear and tear from proper use and operation alone excepted.

4. Patent Infringement Indemnification: Ransburg agrees to indemnify User (but not in an amount in excess of the total fees paid pursuant to Paragraph 7 hereof) against any liability for infringement of letters patent by said Process if used in accordance with the terms and provisions hereof and to undertake at its expense the defense of any suit brought against User for such infringement, provided User shall promptly notify Ransburg of any such claim of infringement, permit Ransburg to assume the defense thereof, and cooperate with Ransburg in respect thereto and in respect to any necessary changes of equipment or use thereof.

5. Liability: User agrees that Ransburg shall not be liable to User (except as provided in Paragraph 4) for any loss, cost, expense, or damage resulting from any failure of said Process or equipment to function in any particular manner or to electrostatically detear any particular article or assembly or resulting from the installing, servicing, adjusting, presence, use, operation or condition of Ransburg's equipment or resulting from any act or omission of Ransburg's employees or agents while on the premises of User. Also, User agrees to indemnify Ransburg for any loss, cost, expense, or damage Ransburg may sustain because of any claims by third parties resulting from the installing, servicing, adjusting, presence, use, operation or condition of Ransburg's equipment or resulting from any act or omission of Ransburg's employees or agents while on the prem-

ises of User; provided, however, User shall not be liable for any loss, cost, expense, or damage Ransburg may sustain because of Ransburg's obligation set forth in Paragraph 4. User shall be liable to Ransburg for any loss of, or damage to, Ransburg's equipment occurring at any time that such equipment is in the possession of User or any of its agents, ordinary wear and tear from proper use and operation alone excepted.

6. Termination: User shall have the right to terminate this agreement at any time upon thirty days' written notice to Ransburg, provided User has fulfilled its obligations hereunder including the return of Ransburg's equipment. Ransburg shall have the right to terminate this agreement at any time after three years from the date of Ransburg's acceptance hereof upon six months' written notice to User.

In the event User shall fail to perform any of the conditions or obligations of this agreement, and such failure shall continue or recur after written notice thereof from Ransburg, Ransburg may (without prejudice to its rights to recover any amounts owing by User as herein provided or any damages for breach of this agreement) terminate this agreement and take possession of its equipment forthwith, and for that purpose permission is hereby given Ransburg or any of its agents to enter any premises wherein its equipment is located to discover and take possession of its equipment without notice and without being liable to any suit, action, indictment, or other proceedings by User or anyone claiming under it. Any delay, concession, or indulgence on the part of Ransburg in enforcing any of its rights on any default shall not be deemed a waiver of such rights.

After notice of termination of this agreement, User agrees to deliver the equipment furnished by Ransburg to Ransburg at Indianapolis, Indiana, freight prepaid, in as good condition as when installed, ordinary wear and tear

incident to its proper use and operation alone excepted.

7. Fees: User agrees to pay to Ransburg an initial fee of .....

.....,

within sixty days after date of shipment of Ransburg's equipment or thirty days after date of installation thereof, whichever occurs earlier. For each calendar month during which this agreement is in effect, User also agrees to pay to Ransburg monthly fees consisting of the following: (1) a basic minimum monthly fee of Fifty Dollars, which shall be payable regardless of whether said Process is used, or to what extent it is used; and (2) an additional monthly fee equal to One Hundred Twenty-five Dollars for each 200 hours, or any fraction thereof, of use of said Process.

The first period for which monthly fees are payable shall commence with the date of installation of Ransburg's equipment for thirty days after the date of shipment thereof by Ransburg, whichever occurs earlier. With respect to any fractional calendar month for which monthly fees are payable, the basic minimum monthly fee shall be prorated according to the portion of the month for which it is payable. Within ten days after the end of each calendar month for which monthly fees are payable, User will furnish to Ransburg upon forms furnished by Ransburg, or, in the absence thereof, upon any reasonably adequate form, a written report stating the number of hours of use of said Process during said month, with reasonably supporting details, and shall pay to Ransburg at its office in Indianapolis, Indiana, all monthly fees payable for said month. User agrees to keep permanent books of account from which the correctness of the monthly payments made under this agreement can be verified and agrees that such books of account shall be open to inspection by Ransburg or its duly authorized representatives at any time during User's regular business hours.

In addition to the above fees, User agrees to pay, or to reimburse Ransburg if it should be obliged to pay, directly or indirectly, any taxes, licenses, or fees imposed by the laws of any State, or any political subdivision, of any municipality, or of any other governmental authority by reason of the installation, possession, use, or location of any equipment furnished by Ransburg or by reason of the furnishing of any services by Ransburg pursuant to this agreement. Such sums as may be due under this provision shall be paid separately or added to the invoice for other payments as the law may require or as Ransburg may determine.

If User does not request shipment of Ransburg's equipment prior to the expiration of six months after the date of Ransburg's acceptance of this agreement, Ransburg shall have the right, prior to shipment of its equipment, to change the fees and conditions of this agreement to conform to its policy as of the date of such shipment.

During the term of this agreement, the monthly fees specified above and the sum set forth in Paragraph 2 may from time to time be adjusted commensurately with changes, from the value for May, 1950, in the Consumer Price Index, Large Cities Combined, All Items, as determined by the Bureau of Labor Statistics of the U. S. Department of Labor, on the 1947-49 base, or any successor thereto; provided, however, no such adjustment shall be made unless a change of at least ten percentage points has occurred in said Index prior to each such adjustment.

8. Execution of Agreement: This agreement sets forth the entire agreement and understanding between the parties as to the subject matter of this agreement, and no statements, conditions, or representations, either oral or written, made by the parties, their employees, or agents, including conditions or provisions appearing in any purchase order or other instrument issued by User, shall be

valid or binding unless contained in a written instrument signed by both parties. Ransburg makes no warranties of any kind, express or implied, except as set forth in this agreement.

All the rights and privileges of Ransburg hereunder shall be extended to and inure to the benefit of the successors in business or assigns of Ransburg upon User being given written notice of the assignment of this agreement to such successors in business or assigns and upon the written acceptance by such successors in business or assigns of all Ransburg's obligations hereunder.

This agreement consisting of three pages is submitted in quadruplicate for execution by User. It shall become a contract only upon its execution and acceptance by Ransburg at Ransburg's home office in Indianapolis, Indiana, and shall be effective under the laws of the State of Indiana.

In Witness Whereof, the parties have caused this agreement to be executed by an authorized officer or person effective as of the date of acceptance by Ransburg set forth below.

Executed and accepted by Ransburg this ..... day of ....., 195....

Ransburg Electro-Coating Corp.
(Ransburg)

By.....
(Title)

.....(User)

By.....
(Title)

Serial No. .....

Ransburg.

Electrostatic Detearing Agreement.

This agreement, entered into by and between Ransburg Electro-Coating Corp., an Indiana corporation, having its principal place of business at Indianapolis, Indiana, hereinafter called "Ransburg," and .....

.....

.....

.....,

hereinafter called "User," Witnesseth:

Whereas, Ransburg owns certain United States letters patent and inventions pertaining to and covering methods and apparatus used in the electrostatic detearing of articles, the process so used being referred to as "said Process" has acquired much engineering data and experience pertaining to said Process is conducting research in that field has performed a substantial amount of engineering in adapting said Process to commercial use, and has supplied User with results of said engineering pertinent to User's production; and

Whereas, User desires to use said Process and benefit from Ransburg's engineering;

Now, therefore, it is mutually agreed as follows:

1. License: In consideration of the payment by User of the fees herein provided, Ransburg hereby grants to User, subject to and in accordance with all of the terms and conditions of this agreement and while the same is in effect, a nonexclusive, nonassignable license to use said Process at User's plant in .....,
with ..... as shown in Ransburg's Drawing No. ....., subject to such changes

therein and such further specifications as Ransburg may prescribe, for electrostastically detearing .....

.....,

but said license shall not include the right to use said Process in the coating of piezo-electric devices and magnetic recording and/or reproducing apparatus.

2. Supervision: Ransburg or any of its agents or duly authorized representatives shall have access without notice and at any time during User's regular business hours, to User's premises where said unit or units are installed for the purpose of determining the manner in and extent to which User is using said Process so that, to the extent Ransburg deems it desirable, Ransburg may make engineering and/or operating recommendations.

3. Liability: User agrees that Ransburg shall not be liable to User for any loss, cost, expense, or damage resulting from any failure of said Process to function in any particular manner or to electrostatically detear any particular article or assembly or resutling from the presence, use, operation or condition of the electrostatic unit or units with which said Process is used or resulting from any act or omission of Ransburg's employees or agents while on the premises of User. Also, User agrees to indemnify Ransburg for any loss, cause, expense or damage Ransburg may sustain because of any claims by third parties resulting from the presence, use, operation or condition of the electrostatic unit or units with which said Process is used or resulting from any act or omission of Ransburg's employees or agents while on the premises of User.

4. Termination: User shall have the right to terminate this agreement at any time upon thirty days' written notice to Ransburg, provided User has fulfilled its obligations hereunder. Ransburg shall have the right to terminate this agreement at any time after three years from the date of Ransburg's acceptance hereof upon six months' written notice to User.

In the event User shall fail to perform any of the conditions or obligations of this agreement, and such failure shall continue or recur after written notice thereof from Ransburg, Ransburg may (without prejudice to its rights to recover any amounts owing by User as herein provided or any damages for breach of this agreement) terminate this agreement forthwith. Any delay, concession, or indulgence on the part of Ransburg in enforcing any of its rights on any default shall not be deemed a waiver of such rights.

5. Fees: User agrees to pay to Ransburg an initial fee of .....

.....,

within thirty days after date of acceptance of this agreement by Ransburg. For each calendar month during which this agreement is in effect, User also agrees to pay to Ransburg monthly fees consisting of the following: (1) a basic minimum monthly fee of Thirty-seven Dollars Fifty Cents, which shall be payable regardless of whether said Process is used, or to what extent it is used; and (2) an additional monthly fee equal to One Hundred Twenty-five Dollars for each 200 hours, or any fraction thereof, of use of said Process.

The first period for which monthly fees are payable shall commence with the date User begins to use said Process under this agreement, or thirty days after the date of acceptance of this agreement by Ransburg, whichever occurs earlier. With respect to any fractional calendar month for which monthly fees are payable, the basic minimum monthly fee shall be prorated according to the portion of the month for which it is payable. Within ten days after the end of each calendar month for which monthly fees are payable, User will furnish to Ransburg upon forms furnished by Ransburg, or, in the absence thereof, upon any reasonably adequate form, a written report stating the number of hours of use of said Process during said month,

with reasonably supporting details, and shall pay to Ransburg at its office in Indianapolis, Indiana, all monthly fees payable for said month. User agrees to keep permanent books of account from which the correctness of the monthly payments made under this agreement can be verified and agrees that such books of account shall be open to inspection by Ransburg or its duly authorized representatives at any time during User's regular business hours.

In addition to the above fees, User agrees to pay, or to reimburse Ransburg if it should be obliged to pay, directly or indirectly, any taxes, licenses, or fees imposed by the laws of any State, of any political subdivision, of any municipality, or of any other governmental authority by reason of the use or operation of said Process or the license granted under this agreement. Such sums as may be due under this provision shall be paid separately or added to the invoice for other payments as the law may require or as Ransburg may determine.

During the term of this agreement, the monthly fees specified above may from time to time be adjusted commensurately with changes, from the value for May, 1950, in the Consumer Price Index, Large Cities Combined, All Items, as determined by the Bureau of Labor Statistics of the U. S. Department of Labor, on the 1947-49 base, or any successor thereto; provided however, no such adjustment shall be made unless a change of at least ten percentage points has occurred in said Index prior to each such adjustment.

6. Execution of Agreement: This agreement sets forth the entire agreement and understanding between the parties as to the subject matter of this agreement, and no statements, conditions, or representations, either oral or written, made by the parties, their employees, or agents, including conditions or provisions appearing in any purchase order or other instrument issued by User, shall be

valid or binding unless contained ~~in a writ~~ten instrument signed by both parties. Ransburg makes no warranties of any kind, express or implied, except as set forth in this agreement.

All the rights and privileges of Ransburg hereunder shall be extended to and inure to the benefit of the successors in business or assigns of Ransburg upon User being given written notice of the assignment of this agreement to such successors in business or assigns and upon the written acceptance by such successors in business or assigns of all Ransburg's obligations hereunder.

This agreement consisting of two pages is submitted in quadruplicate for execution by User. It shall become a contract only upon its execution and acceptance by Ransburg at Ransburg's home office in Indianapolis, Indiana, and shall be effective under the laws of the State of Indiana.

In Witness Whereof, the partie shave caused this agreement to be executed by an authorized officer or person effective as of the date of acceptance by Ransburg set forth below.

Executed and accepted by Ransburg this..... day of....., 195.....

Ransburg Electro-Coating Corp. (Ransburg)

By.....

(Title)

.....(User)

By.....

(Title)

242-2

Serial No. .....

Ransburg.

Electro-Spray Agreement.

This agreement, entered into by and between Ransburg Electro-Coating Corp., an Indiana corporation, having its principal place of business at Indianapolis, Indiana, hereinafter called "Ransburg," and .....

.....

.....,

hereinatfer called "User," Witnesseth:

Whereas, Ransburg is the owner of, or otherwise has the right to grant licenses under, certain United States letters patent and inventions pertaining to and covering methods and apparatus used in electrostatically depositing liquid spray particles formed by airless atomization (without the use of compressed air), the process so used being hereinafter referred to as "said Process," has acquired much engineering data and experience pertaining to said Process, is conducting research in that field, has performed a substantial amount of engineering in adapting said Process to commercial use, and has supplied User with results of said engineering pertinent to User's production; and

Whereas, User desires to use said Process and benefit from Ransburg's engineering;

Now, therefore, it is mutually agreed as follows:

1. License: In consideration of the payment by User of the fees herein provided, Ransburg hereby grants to User, subject to and in accordance with all of the terms and conditions of this agreement and while the same is in effect, a nonexclusive, nonassignable license to use said Process at User's plant in ....., with ..... as shown in Ransburg's

Drawing No. ....., subject to such changes therein and such further specifications as Ransburg may prescribe, for electrostatically spraying .....

.....

.....

2. Supervision: Ransburg or any of its agents or duly authorized representatives shall have access, without notice and at any time during User's regular business hours, to User's premises where said unit or units are installed for the purpose of determining the manner in and extent to which User is using said Process so that, to the extent Ransburg deems it desirable, Ransburg may make engineering and/or operating recommendations.

3. Liability: User agrees that Ransburg shall not be liable to User for any loss, cost, expense, or damage resulting from any failure of said Process to function in any particular manner or to electrostatically coat any particular article or assembly or resulting from the presence, use, operation or condition of the electrostatic unit or units with which said Process is used or resulting from any act or omission of Ransburg's employees or agents while on the premises of User. Also, User agrees to indemnify Ransburg for any loss, cost, expense, or damage Ransburg may sustain because of any claims by third parties resulting from the presence, use, operation or condition of the electrostatic unit or units with which said Process is used or resulting from any act or omission of Ransburg's employees or agent while on the premises of User.

4. Termination: User shall have the right to terminate this agreement at any time upon thirty days' written notice to Ransburg, provided User has fulfilled its obligations hereunder. Ransburg shall have the right to terminate this agreement at any time after three years from the date of Ransburg's acceptance hereof upon six months' written notice to User.

In the event User shall fail to perform any of the conditions or obligations of this agreement, and such failure shall continue or recur after written notice thereof from Ransburg, Ransburg may (without prejudice to its rights to recover any amounts owing by User as herein provided or any damages for breach of this agreement) terminate this agreement forthwith. Any delay, concession, or indulgence on the part of Ransburg in enforcing any of its rights on any default shall not be deemed a waiver of such rights.

5. Fees: User agrees to pay to Ransburg an initial fee of .....

.....

within thirty days after date of acceptance of this agreement by Ransburg. For each calendar month during which this agreement is in effect, User also agrees to pay to Ransburg a monthly fee.

The first period for which a monthly fee is payable shall commence on the date User begins to use said Process under this agreement or thirty days after its acceptance by Ransburg, whichever occurs earlier. With respect to any fractional calendar month for which a monthly fee is payable, the basic minimum monthly fee shall be prorated according to the portion of the month for which it is payable. Within ten days after the end of each calendar month for which a monthly fee is payable, User will furnish to Ransburg upon forms furnished by Ransburg, or, in the absence thereof, upon any reasonably adequate form, a written report setting forth in reasonable detail the information upon which the aforesaid monthly fee may be computed and shall pay to Ransburg at its office at Indianapolis, Indiana, the monthly fee payable for said month. User agrees to keep permanent books of account from which the correctness of said written reports can be verified and agrees that such books of account shall be open to inspection by Ransburg or its duly authorized

representatives at any time during User's regular business hours.

In addition to the above fees, User agrees to pay or to reimburse Ransburg if it should be obliged to pay, directly or indirectly, any taxes, licenses, or fees imposed by the laws of any State, of any political subdivision, of any municipality, or of any other governmental authority by reason of the use or operation of said Process or the license granted under this agreement. Such sums as may be due under this provision shall be paid separately or added to the invoice for other payments as the law may require or as Ransburg may determine.

During the term of this agreement, the basic minimum monthly fee specified above may from time to time be adjusted commensurately with changes, from the value for November, 1950, in the Consumer Price Index, Large Cities Combined, All Items, as determined by the Bureau of Labor Statistics of the U. S. Department of Labor, on the 1947-49 base, or any successor thereto; provided, however, no such adjustment shall be made unless a change of at least ten percentage points has occurred in said Index prior to each such adjustment.

6. Execution of Agreement: This agreement sets forth the entire agreement and understanding between the parties as to the subject matter of this agreement, and no statements, conditions, or representations, either oral or written, made by the parties, their employees, or agents, including conditions or provisions appearing in any purchase order or other instrument issued by User, shall be valid or binding unless contained in a written instrument signed by both parties. Ransburg makes no warranties of any kind, express or implied, except as set forth in this agreement.

All the rights and privileges of Ransburg hereunder shall be extended to and inure to the benefit of the suc-

cessors in business or assigns of Ransburg upon User being given written notice of the assignment of this agreement to such successors in business or assigns and upon the written acceptance by such successors in business or assigns of all Ransburg's obligations hereunder.

This agreement consisting of two pages is submitted in quadruplicate for execution by User. It shall become a contract only upon its execution and acceptance by Ransburg at Ransburg's home office in Indianapolis, Indiana, and shall be effective under the laws of the State of Indiana.

In Witness Whereof, the parties have caused this agreement to be executed by an authorized officer or person effective as of the date of acceptance by Ransburg set forth below.

.....(User)

By.....

(Title)

Executed and accepted by Ransburg this.....
day of ....., 195.....

Ransburg Electro-Coating Corp. (Ransburg)

By.....

(Title)

437-2

DEFENDANT'S EXHIBIT NO. 29.

Ransburg Electro-Coating Corp.
Indianapolis, Indiana.

June 6, 1956

Sales Bulletin No. 171

To: RHS EJS RO DFC EMR
Peabody
EMP DEC MR WWS HJR
Ransburg (Australia)
JEM MFP HEM DCH GR

Subject: New Agreement Form for No. 2 Process

Gentlemen:

Attached is our new agreement form for the No. 2 Process with equipment, which I hope you like for its conciseness, layman readability and arrangement.

The forms for the No. 1 and Detearing Processes, and agreements for a license without equipment are also being re-written, attempting to embody the same salesworthy advantages, and copies will be sent to you when this work is completed.

In the future only the original and one carbon will be issued. The customer will sign both and we will return one copy after our acceptance and execution. (Of course you will receive a copy of each agreement issued to anyone in your territory, as usual.)

Despite the apparent brevity, there is no substantial change in the agreement other than altering the condition that formerly permitted us to collect half of the initial fee if the equipment was not ordered shipped within six months, to the condition (see third paragraph on page 2) which gives us the right to change the fees and terms to

conform to any changes in our general policy if the equipment is not ordered out within one year after signature. We hope that this change will permit us to get agreements signed farther in advance of installation than the old terms sometimes permitted.

Another change is that the Cost of Living Index (paragraph 1 on page 2) is to be based on the January 1956 Consumers' Price Index instead of November 1950.

We hope that you recognize the very serious effort to make the agreement appear palatable and simple and salesworthy, and that you appreciate these changes.

Yours very truly,
Harold,
Harold P. Ransburg.

HPR:ch

No.....

Ransburg

Electro-Spray Agreement.

User .....
Plant: .....Units: .....Drawing No.....
Items: .....

Ransburg Electro-Coating Corp., of Indianapolis, Indiana (herein called Ransburg), which owns patents and inventions for electrostatically depositing airlessly atomized (without compressed air) liquid spray particles, herein called "the Process," has done and is doing extensive engineering and research on the Process, and has designed special equipment therefor; and the above User, which desires to use the Process, engineering and equipment, agree that:

1. License. During the term and subject to the provisions, hereof, Ransburg grants User a non-exclusive li-

cense to use the Process at User's plant, with the number of units, in accordance with Ransburg's drawing made a part hereof (subject to such changes in equipment, procedure, and specifications as Ransburg may from time to time designate) for coating the items, all as set forth above.

2. Equipment and Supervision. At the time requested by User, Ransburg will ship prepaid to the above plant, for use of the Process, high voltage, atomizing, liquid supply and electrical control equipment, and will furnish expert supervision for installing and placing it in operation. If Ransburg's supervisor is required to make more than one trip to User's plant or is there delayed for any reason not chargeable to Ransburg, User will pay Ransburg $75.00 for each day of such extra trip or delay, plus transportation expenses incurred. User shall furnish all other labor, materials and equipment for the installation and use of the Process.

Ransburg will furnish replacements for any defective part of its equipment at the expense of (1) Ransburg, if the part becomes defective through ordinary wear and tear from proper use and if it is returned prepaid within 30 days after becoming defective, or (2) User, at Ransburg's applicable standard replacement charge, if it becomes defective, through improper use or negligence of User, or is not returned within said 30 day period.

Ransburg's obligation to furnish equipment, supervision and replacement parts is subject to availability of the equipment and parts, to prior commitments, fires, strikes, acts of God, governmental decrees or actions, and any other causes beyond Ransburg's control, postponing or preventing performance.

3. Fees. User will pay Ransburg at Indianapolis, Indiana: (1) An initial fee of $..... sixty days after shipment of Ransburg's equipment to User, or 30 days

after its installation, whichever period expires earlier; and (2) For each calendar month during the term hereof, commencing upon completion of installation of the equipment or on the thirtieth day following shipment thereof, whichever occurs earlier, a monthly fee (pro-rated for any partial initial calendar month) equal to

At the request of either party the minimum monthly fee from time to time shall be adjusted commensurate with changes of not less than ten points from the value for January, 1956 of the Consumer Price Index, Large Cities Combined, All items, of the Bureau of Labor Statistics of the U. S. Department of Labor, on the 1947-1949 base, or any successor thereto.

User will keep and make available for Ransburg's inspection during business hours permanent records of all information required for computing monthly fees. Within 10 days following each calendar month User will furnish to Ransburg a written report containing all information for computing the fee for that month, with User's computation and payment of the fee.

If shipment of the equipment is requested by User more than one year after Ransburg's acceptance of this agreement, Ransburg shall have the right to change the fees and terms of this agreement in conformity with its policy at that time.

4. Title and Use of Equipment. All equipment furnished by Ransburg shall remain its personal property and in User's possession until returned to Ransburg as herein provided. User will pay Ransburg for any loss of, or damage to, Ransburg's equipment while in the possession of User or its agents and upon termination of this agreement will at its expense promptly deliver the equipment, freight prepaid, to Ransburg at Indianapolis, Indiana, in as good condition as when received, except only for ordinary wear and tear from proper use.

User will pay, or reimburse Ransburg for, any taxes or fees imposed by any governmental authority by reason of the installation, possession, use, or location of any equipment or services furnished by Ransburg hereunder.

User will use the equipment and the Process in accordance with Ransburg's safety and operating recommendations, and will not make any use thereof except as herein provided. Ransburg shall have the right to enter User's premises during business hours to inspect the condition and use of the equipment.

5. Liability. Ransburg shall not be liable to User for damages resulting from the installation, servicing, presence, use, or condition of Ransburg's equipment at User's plant. User indemnifies Ransburg against all claims of others for any damages resulting from the installation, servicing, presence, use, or condition of Ransburg's equipment at User's plant. Ransburg makes no warranty, express or implied, relative to the Process or equipment.

6. Term. This agreement shall be in effect from the date of acceptance by Ransburg until terminated as follows: (1) User may terminate as of the end of any calendar month or as of the date of return of Ransburg's equipment, whichever is later, upon 30 days' written notice to Ransburg; (2) Ransburg may terminate as of any date after three years from the acceptance date hereof, upon six months' written notice to User; or (3) Ransburg may terminate forthwith should User become insolvent or bankrupt or should any breach or default by User remain uncured for 20 days after written notice thereof from Ransburg, and in any such case Ransburg may enter User's premises and repossess its equipment without it or its authorized representatives incurring any liability for trespass or other causes and without prejudice to its rights to recover amounts owing it hereunder or damages for breach of this agreement.

This written agreement constitutes the entire agreement between the parties, and no terms or understandings not herein contained (whether included in any purchase order or otherwise) shall be valid or binding unless contained in a writing signed by both parties. This agreement shall be governed by the law of Indiana.

Signed by User on ..... 195.....

.....(User)

By .....

(Title)

Accepted by Ransburg on ....., 195.....

Ransburg Electro-Coating Corp.,

By .....

(Title)

DEFENDANT'S EXHIBIT NO. 30.

Serial No. 5409

Ransburg Electrostatic Spray Process Agreement.

This agreement, entered into by and between Ransburg Electro-Coating Corp., an Indiana corporation, having its principal place of business at Indianapolis, Indiana, hereinafter called "Ransburg," and Millgren Manufacturing Company, Huntington Park, California, hereinafter called "User," Witnesseth:

Whereas, Ransburg is the owner of, or otherwise has the right to grant licenses under, certain United States letters patent and inventions all pertaining to and covering methods and apparatus used in the electrostatic coating of articles, the process so used being referred to as "said Process," has acquired much engineering data and experience pertaining to said Process, is conducting research in that

field, has performed a substantial amount of engineering in adapting said Process to commercial use, and has supplied User with the results of said engineering pertinent to User's production; and

Whereas, User desires to use said Process and benefit from Ransburg's engineering;

Now, therefore, it is mutually agreed as follows:

1. License: In consideration of the payment by User of the fees herein provided, Ransburg hereby grants to User, subject to and in accordance with all of the terms and conditions of this agreement and while the same is in effect, a nonexclusive, nonassignable license to use said Process at User's plant in Buena Park, California, with one unit as now installed at Buena Park, subject to such changes therein and such further specifications as Ransburg may prescribe, for electrostatically spraying Door Knobs and Builders' Hardware, but said license shall not include the use of said Process in the manufacture of abrasive articles, flock-coated articles, or articles coated with fiber-shaped particles.

2. Supervision: Ransburg or any of its agents or duly authorized representatives shall, without notice and at any time during User's regular business hours, have access to User's premises where said unit is installed for the purpose of determining the manner in and extent to which User is using said Process so that, to the extent Ransburg deems it desirable, Ransburg may make engineering and/or operating recommendations.

3. Conversion: Upon written request of User and upon terms to be agreeable to both parties, Ransburg will license the use of said Process otherwise than as described in Paragraph 1 unless, in Ransburg's opinion, the requested use involves unsafe practices or impractical conditions or is in conflict with the policies or commitments of Ransburg.

Such conversion shall be made only after Ransburg has agreed thereto in writing.

4. Liability: User agrees that Ransburg shall not be liable to User for any loss, cost, expense, or damage arising from any failure of said Process to function in any particular manner or to electrostatically coat any particular article or assembly, or for any claim resulting from the use, operation, or condition of the electrostatic unit with which said Process is used. User further agrees to reimburse Ransburg for any loss, cost, expense, or damage which may be sustained as a result of any liability to third parties for any claim resulting from the use, operation, or condition of the electrostatic unit with which said Process is used.

5. Performance: The performance of the obligations of both parties hereunder is subject to strikes and lockouts, whether in the organization of either party or elsewhere, and to accidents, fires, delays in manufacture or transportation, acts of God, embargoes, or any governmental action, as well as any causes for postponement or non-performance over which the parties have no control; and any failure, due to any of such causes, of either party to perform any of its obligations herein set forth shall not be considered a violation of this agreement.

6. Termination: User shall have the right to terminate this agreement at any time upon thirty days' written notice to Ransburg, provided User has fulfilled its obligations hereunder. Ransburg shall have the right to terminate this agreement at any time after three years from the date of Ransburg's acceptance hereof upon six months' written notice to User.

In the event User shall fail to perform any of the conditions or obligations of this agreement, and such failure shall continue or recur after written notice thereof from Ransburg, Ransburg may (without prejudice to its rights

to recover any amounts owing by User as herein provided or any damages for breach of this agreement) terminate this agreement forthwith. Any delay, concession, or indulgence on the part of Ransburg in enforcing any of its rights on any default shall not be deemed a waiver of such rights.

6. Fees: User agrees to pay to Ransburg an initial fee paid per settlement within thirty days after the date of acceptance of this agreement by Ransburg. User further agrees to pay Ransburg, on or before the tenth day of each calendar month during the life of this agreement, a basic minimum monthly fee of Eighty Dollars ($80.00), which fee is due in any event, and in addition thereto a monthly fee based on the cost to User of the coating material (including all its ingredients) used in said unit during the preceding calendar month in accordance with the following schedule:

Monthly Cost of Coating Material	Monthly Fee
Less than $4,000.00	10% of Cost
$4,000.00 to $8,000.00	$400.00 plus 5% of Cost over $4,000.00
In Excess of $8,000.00	$600.00

Monthly fees under this agreement shall start on the date User begins to use said Process under this agreement or thirty days after the date of acceptance of this agreement by Ransburg, whichever occurs earlier, and the first payment shall be made on or before the tenth day of the calendar month following. For the first and last payments of monthly fees under this agreement, the basic minimum monthly fee shall be prorated according to the portion of the month for which it is payable.

In addition to the above fees, User agrees to pay or to reimburse Ransburg if it should be obliged to pay, directly or indirectly, any taxes, licenses, or fees imposed

by the laws of any State, of any political subdivision, of any municipality, or of any other governmental authority by reason of the use or operation of said Process or the license granted under this agreement. Such sums as may be due under this provision shall be paid separately or added to the invoice for other payments as the law may require or as Ransburg may determine.

During the term of this agreement, the basic minimum monthly fee specified above shall from time to time be adjusted commensurately with changes, from the value for May 15, 1950, in the Revised Consumer Price Index, Large Cities Combined, as determined by the Bureau of Labor Statistics of the U. S. Department of Labor, on the 1947-49 base; provided, however, that only a change of at least ten percentage points in the value of said Index shall require any such adjustment.

User agrees to keep permanent books of account from which the correctness of the monthly payments made under this agreement can be verified and agrees that such books of account shall be open to inspection by Ransburg or its duly authorized representatives at any time during User's regular business hours.

8. Execution of Agreement: This agreement sets forth the entire agreement and understanding between the parties as to the subject matter of this agreement, and no statements, conditions, or representations, either oral or written, made by the parties, their employees, or agents, including conditions or provisions appearing in any purchase order or other instrument issued by User, shall be valid or binding unless contained in a written instrument signed by both parties. Ransburg makes no warranties of any kind, express or implied, except as set forth in this agreement.

All the rights and privileges of Ransburg hereunder shall be extended to and inure to the benefit of the successors in business or assigns of Ransburg upon User being given

written notice of the assignment of this agreement to such successor in business or assigns and upon the written acceptance by such successors in business or assigns of all Ransburg's obligations hereunder.

This agreement is submitted in quadruplicate for execution by User. It shall become a contract only upon its execution and acceptance by Ransburg at Ransburg's home office in Indianapolis, Indiana, and shall be effective under the laws of the State of Indiana.

In Witness Whereof, the parties have caused this agreement to be executed by an authorized officer or person effective as of the date of acceptance by Ransburg set forth below.

Executed and accepted this 13th day of July, 1954.

Hillgren Manufacturing Company (User)
By Carl Hillgren

(Title)

Ransburg Electro-Coating Corp. (Ransburg)
By E. M. Ransburg, *V. P.*

(Title)

Form No. 137.
BC 6-25-54

DEFENDANT'S EXHIBIT NO. 34.

May 27, 1953

Remington Arms Company, Inc.
Lake City Ordnance Plant
Independence, Missouri

Re: Agreements No. 4322, 4744 and 4745

Gentlemen:

We wish to inquire whether you would like to convert the subject electrostatic spray licenses to licenses under which we would furnish you no equipment and under which we would assume no obligation for replacements parts, supervision, or service, or patent infringement indemnification. If you should elect to assume responsibility for these items for yourself and return our equipment, your basic minimum monthly fee of $100 for each unit would be reduced to $80.00 for each unit, and your initial fee under No. 4744 would be reduced from $2,600.00 to $800.00.

If you are interested in such a proposal, upon advice from you we will send our alternate license agreement.

Yours very truly,

Ransburg Electro-Coating Corp.

E. M. Ransburg

EMR/mm

DEFENDANT'S EXHIBIT NO. 35.

May 27, 1953

The Frito Company,
613 East Tenth Street
Dallas, Texas

Gentlemen:

We wish to inquire whether you would like to convert your present electrostatic spray license to one under which we would furnish you no equipment and under which we would assume no obligation for replacement parts, supervision or service, or patent infringement indemnification. If you should elect to assume responsibility for these items for yourself, your initial fee would be reduced from $2600 to $800, and your basic minimum monthly fee of $100 would be reduced to $80.

If you are interested in such a proposal, upon advice from you we will send our alternate license agreement.

Yours very truly,

Ransburg Electro-Coating Corp.

E. M. Ransburg

EMR/gim

DEFENDANT'S EXHIBIT NO. 36.

July 17, 1953

General Electric Company
1285 Boston Avenue
Bridgeport 2, Connecticut

Gentlemen:

We are writing all of our customers to inquire whether they would prefer a license under which we would supply no equipment and assume no obligation for replacement parts, supervision and service. If, for any reason, you should prefer to provide these items for yourself or to procure them from sources other than our company and return our equipment to us, in your particular case your monthly fees would be reduced by $120.00 per month under Agreement No. 4828. Your initial fee would be reduced by $7,920.00 and your monthly fees by $75.00 per month under Agreement No. 5021.

If you are interested in such a proposal, upon advice from you, we will send our alternate license agreement.

Yours very truly,

Ransburg Electro-Coating Corp.

E. M. Ransburg

EMR:aw

DEFENDANT'S EXHIBIT NO. 37.

May 27, 1953

The Weatherhead Company
300 East 131st Street
Cleveland, Ohio

Re: Agreement Nos. 3508, 3586 and 4983.

Gentlemen:

We wish to inquire whether you would like to convert the subject electrostatic painting licenses to licenses under which we would furnish you no equipment and under which we would assume no obligation for replacement parts, supervision or service, or patent infringement indemnification. If you should elect to assume responsibility for these items for your self and return our equipment, your initial fee under agreement 4983 would be reduced from $1800.00 to $400.00, your basic minimum monthly fee under agreement No. 4983 would be reduced from $50.00 to $37.50 and your basic minimum monthly fee under agreements Nos. 3508 and 3086 of $100.00 for each unit would be reduced to $80.00 for each unit.

If you are interested in such a proposal, upon advice from you we will send our alternate license agreement.

Yours very truly,

Ransburg Electro-Coating Corp.
E. M. Ransburg

EMR/rh

DEFENDANT'S EXHIBIT NO. 38.

May 28, 1953

Rheem Mfg. Company
Burlington Ordnance Plant
Burlington, New Jersey

Re: Agreements Nos. 4462, 4463, 4464, 4465, 4466 and 4743.

Gentlemen:

We wish to inquire whether you would like to convert the subject detearing licenses to one under which we would furnish you no equipment and under which we would assume no obligation for replacement parts, supervision or service, or patent infringement indemnification. If you should elect to assume responsibility for these items for yourself and return our equipment, your basic minimum monthly fee of $50.00 for each unit would be reduced to $37.50 for each unit, and your initial fee under Agreement No. 4743 will be reduced from $1800.00 to $400.00.

If you are interested in such a proposal, upon advice from you we will send our alternate license agreement.

Yours very truly,
Ransburg Electro-Coating Corp.
E. M. Ransburg

EMR/mm

DEFENDANT'S EXHIBIT NO. 39.

May 27, 1953

Public Service Electric and Gas Company
80 Park Place
Newark 1, New Jersey

Gentlemen:

We wish to inquire whether you would like to convert your present electrostatic spray license to one under which we will furnish you no equipment and under which we would assume no obligation for replacement parts, supervision or service, or patent infringement indemnification. If you should elect to assume responsibility for these items for yourself, your initial fee would be reduced from $3200 to $1400, and your basic minimum monthly fee of $100 would be reduced to $80.

If you are interested in such a proposal, upon advice from you we will send our alternate license agreement.

Yours very truly,

Ransburg Electro-Coating Corp.

E. M. Ransburg

EMR/gm

DEFENDANT'S EXHIBIT NO. 40.

May 28, 1953

C. A. Olson Mfg. Company
Elyria, Ohio

Gentlemen:

We wish to inquire whether you would like to convert your present electrostatic spray license to one under which we would furnish you no equipment and under which we would assume no obligation for replacement parts, supervision or service, or patent infringement indemnification. If you should elect to assume responsibility of these items for yourself and return our equipment, your initial fee would be reduced from $1500 to $1000 and your basic minimum monthly fee of $200.00 would be reduced to $180.00.

If you are interested in such a proposal, upon advice from you we will send our alternate license agreement.

Yours very truly,

Ransburg Electro-Coating Corp.
E. M. Ransburg

EMR/mm

PLAINTIFF'S EXHIBIT YY.

Ransburg Electro-Coating Corp.
Indianapolis, Indiana

May 27, 1953

To All Distributors

Attached is a new pricing sheet showing a change in initial fees for Detearing and No. 1 Spray Process and a more concise listing of No. 2 Process initial and monthly fees. As you know, it has always been our policy to be willing to grant any customer a license under our patents with or without our equipment (our Bulletin of August 18, 1950). The enclosed price sheet shows the differences in initial fees so that all interested customers can be advised promptly by you of the proper prices and terms of agreements either with equipment and appurtenant items, or a license without equipment and appurtenant items. Attached are four sample agreements, identified as A, B, C, and D.

A is our standard detearing agreement under which the customer obtains from us all the services and facilities we are willing to supply.

B is our standard detearing agreement under which we license our detearing process without furnishing equipment and appurtenant items thereto.

C is our standard No. 1 spray agreement under which the customer obtains from us all the services and facilities we are willing to supply.

D is our standard No. 1 spray agreement under which we license our No. 1 Spray Process without furnishing equipment and appurtenant items thereto.

You will notice that the principal changes in agreements identified as B and D are:

1. All of the paragraphs relating to Ransburg's providing equipment, supervision, and patent infringement indemnification have been eliminated.
2. The Inspection paragraph in the new agreement gives Ransburg the right to inspect User's plant to determine the manner in and extent to which User is using the Detearing Process, whereas in the old agreement the Title paragraph provides that Ransburg shall have the right to enter User's plant to determine the manner in which its equipment and process are being used.
3. The Fee paragraph has been changed by modifying the initial fee and the basic minimum monthly fee to take into account the fact that Ransburg is not furnishing any equpiment and appurtenant items.

We are sending these to each of you with the request that each prospective customer be advised that either agreement form is available and the attached price sheet will give you the price differentials for the respective agreements.

In the event any of our present detearing or No. 1 spray licensees are unfamiliar with the fact that they can as readily obtain a license from us without equipment and appurtenant items, they will now be advised by an appropriate letter from us, as per the enclosed letters E, F, G, and H.

Yours very truly,

E. M. Ransburg

EMR:eh

PLAINTIFF'S EXHIBIT ZZ-10.

Ransburg Electro-Spray Agreement Serial No. 6087.

This agreement, entered into by and between Ransburg Electro-Coating Corp., an Indiana corporation, having its principal place of business at Indianapolis, Indiana, hereinafter called "Ransburg," and General Electric Company, Louisville, Kentucky, hereinafter called "User," Witnesseth:

Whereas, Ransburg is the owner of, or otherwise has the right to grant licenses under, certain United States letters patent and inventions pertaining to and covering methods and apparatus used in electrostatically depositing liquid spray particles, the process so used being hereinafter referred as as "said Process," has acquired much engineering data and experience pertaining to said Process, is conducting research in that field, has performed a substantial amount of engineering in adapting said Process to commercial use, has supplied User with some of the results of said engineering pertinent to User's experimental use and has designed special equipment therefor; and

Whereas, in consideration of several other licenses to User under which Ransburg is receiving additional fees, Ransburg desires to grant User a license to use said engineering and said Process experimentally during the term of this agreement; and

Whereas, User desires to use said Process and benefit from Ransburg's engineering and requests that Ransburg furnish certain special equipment hereinbelow described; Now, therefore, it is mutually agreed as follows:

1. License: In consideration of the payment by User of the fees herein provided, Ransburg hereby grants to User, subject to and in accordance with all of the terms

and conditions of this agreement and while the same is in effect, a nonexclusive, nonassignable license to use said Process at User's plant in Louisville, Kentucky, with one unit as shown in Ransburg's Drawing No. 231537 subject to such changes therein and such further specifications as Ransburg may prescribe, for testing and matching paints. It is specifically understood that the license under this agreement does not give User the right to use said unit for coating articles for commercial use or for testing the coating of articles for third parties.

2. Equipment and Supervision: Ransburg will furnish User, for its use of said Process, high voltage apparatus, disc type atomizing equipment, liquid supply apparatus for such atomizer, electrical controls for such equipment, and such other equipment as Ransburg deems desirable, which will be shipped prepaid to User's aforesaid plant upon request of User. As parts of Ransburg's equipment become defective, User agrees to return prepaid to Ransburg promptly all such defective parts. Ransburg will furnish User, at Ransburg's prevailing standard charges, replacements of any equipment furnished by Ransburg under this paragraph that becomes defective.

Ransburg will furnish supervision necessary for placing the equipment in readiness for operation. Should Ransburg's supervisor make more than one trip to the plant of User or be delayed there for any cause not chargeable to Ransburg, then for each day of such trip or trips or of such delay, User shall pay Ransburg the sum of Seventy-five Dollars and any necessary transportation expenses incurred thereby.

User shall furnish all labor, materials, and equipment necessary for the use of said Process except the equipment and supervision to be furnished by Ransburg in accordance with this paragraph.

The furnishing of equipment, replacements, and super-

vision by Ransburg is subject to the availability to Ransburg of the necessary component parts of the equipment and replacements, to prior shipment commitments of Ransburg, to strikes and lockouts, whether in the organization of Ransburg or elsewhere, and to accidents, fires, delays in manufacture or transportation, acts of God, court injunctions, or any governmental action, as well as any causes for postponement or non-performance over which Ransburg has no control; and any failure, due to any of such causes, of Ransburg to perform any of its obligations herein set forth shall not be considered a breach of this agreement.

3. Title and Use of Equipment: Title to all equipment furnished by Ransburg including replacements shall at all times remain in Ransburg, and said equipment shall remain personal property regardless of how it is affixed to the realty. Ransburg shall have at all times, during business hours, the right to enter User's premises for the purpose of determining whether its equipment and said Process are being used as herein provided. User shall not have the right, without the written consent of Ransburg, to (1) lease or grant the right to use the equipment furnished by Ransburg to any person, firm, or corporation, (2) remove it from the plant to which it is delivered for installation, or (3) use it for any purpose or in any manner other than as herein provided.

User agrees that it shall not use or operate Ransburg's equipment with any of the parts or safety devices removed, that it shall follow Ransburg's safety and operating recommendations, and that it shall maintain Ransburg's equipment in as good condition as when installed, ordinary wear and tear from proper use and operation alone excepted.

4. Liability: User agrees that Ransburg shall not be liable to User for any loss, cost, expense, or damage resulting from any failure of said process or equipment to func-

tion in any particular manner or to electrostatically coat any particular article or assembly or resulting from the installing, servicing, adjusting, presence, use, operation or condition of Ransburg's equipment or resulting from any act or omission of Ransburg's employees or agents while on the premises of User. Also, User agrees to indemnify Ransburg for any loss, cost, expense, or damage Ransburg may sustain because of any claims by third parties resulting from the installing, servicing, adjusting, presence, use, operation or condition of Ransburg's equipment or resulting from any act or omission of Ransburg's employees or agents while on the premises of User. User shall be liable to Ransburg for any loss of, or damage to, Ransburg's equipment occurring at any time that such equipment is in the possession of User or any of its agents, ordinary wear and tear from proper use and operation alone excepted.

5. Termination: Either party to this agreement shall have the right to terminate this agreement at any time upon giving the other party 30 days' written notice.

After User returns Ransburg's equipment upon termination of this agreement, Ransburg will refund to User the balance of the initial fee paid by User after deducting the following: (a) any expenses incurred by Ransburg as a result of the return of its equipment, (b) the initial cost of that portion of Ransburg's returned equipment which Ransburg considers obsolete or defective, (c) the cost to Ransburg for initial installation and supervision of User's electrostatic unit under this agreement, and (d) the cost to Ransburg for reconditioning the portion of its returned equipment that is not obsolete.

In the event User shall fail to perform any of the conditions or obligations of this agreement, and such failure shall continue or recur after written notice thereof from Ransburg, Ransburg may (without prejudice to its rights to recover any amounts owing by User as herein provided

or any damages for breach of this agreement) terminate this agreement and take possession of its equipment forthwith, and for that purpose permission is hereby given Ransburg or any of its agents to enter any premises wherein its equipment is located to discover and take possession of its equipment without notice and without being liable to any suit, action, indictment, or other proceedings by User or anyone claiming under it. Any delay, concession, or indulgence on the part of Ransburg in enforcing any of its rights on any default shall not be deemed a waiver of such rights.

After notice of termination of this agreement, User agrees to deliver the equipment furnished by Ransburg, to Ransburg at Indianapolis, Indiana, freight prepaid, in as good condition as when installed, ordinary wear and tear incident to its proper use and operation alone excepted.

6. Fees: User agrees to pay to Ransburg an initial fee of Three Thousand Five Hundred Dollars ($3,500.00) within sixty days after date of shipment of Ransburg's equipment or thirty days after date of installation thereof, whichever occurs earlier.

In addition to the above fees, User agrees to pay, or to reimburse Ransburg if it should be obligated to pay, directly or indirectly, any taxes, licenses, or fees imposed by the laws of any State, of any political subdivision, of any municipality, or of any other governmental authority by reason of the installation, possession, use or location of any equipment furnished by Ransburg or by reason of the furnishing of any services by Ransburg pursuant to this agreement. Such sums as may be due under this provision shall be paid separately or added to the invoice for other payments as the law may require or as Ransburg may determine.

If User does not request shipment of Ransburg's equipment prior to the expiration of six months after the date of

Ransburg's acceptance of this agreement, Ransburg shall have the right, prior to shipment of its equipment, to change the fees and conditions of this agreement to conform to its policy as of the date of such shipment.

During the term of this agreement, the sum set forth in Paragraph 2 may from time to time be adjusted commensurately with changes, from the value for November, 1950, in the Consumer Price Index, Large Cities Combined, All Items, as determined by the Bureau of Labor Statistics of the U. S. Department of Labor, on the 1947-49 base, or any successor thereto; provided, however, no such adjustment shall be made unless a change of at least ten percentage points has occurred in said Index prior to each adjustment.

7. Performance By User: The prompt return of Ransburg's equipment under Paragraph 5 hereunder by User is subject to strikes and lockouts, whether in the organization of User or elsewhere, and to accidents, fires, delays in transportation, acts of God, embargoes or any governmental action as well as any causes for postponement or non-performance over which User has no control; and any failure due to any such causes of User to promptly return Ransburg's equipment shall not be considered a violation of this agreement, provided, if for causes under this paragraph, it becomes impossible for User to return Ransburg's equipment or the return of Ransburg's equipment is delayed more than one year from the date of termination of this agreement, User shall reimburse Ransburg promptly for its equipment in an amount determined by Ransburg but not in excess of the initial fee set forth in Paragraph 6, and provided further that if for causes under this paragraph said equipment is destroyed prior to the termination of this agreement, User may elect to have Ransburg replace said equipment hereunder by payment to Ransburg of an amount determined by Ransburg but not in excess of

the initial fee set forth in Paragraph 6, adjusted commensurately with changes, from the value for November, 1950, in the Consumer Price Index, Large Cities Combined, All Items, as determined by the Bureau of Labor Statistics of the U. S. Department of Labor, on the 1947-49 base, or any successor thereto; provided, however, no such adjustment shall be made unless a change of at least ten percentage points has occurred in said Index prior to such adjustment, and upon such election User's obligations to return the original equipment or to reimburse Ransburg therefor shall cease.

8. Execution of Agreement: This agreement sets forth the entire agreement and understanding between the parties as to the subject matter of this agreement, and no statements, conditions, or representations, either oral or written, made by the parties, their employees, or agents, including conditions or provisions appearing in any purchase order or other instrument issued by User, shall be valid or binding unless contained in a written instrument signed by both parties. Ransburg makes no warranties of any kind, express or implied, except as set forth in this agreement.

All the rights and privileges of Ransburg hereunder shall be extended to and inure to the benefit of the successors in business or assigns of Ransburg upon User being given written notice of the assignment of this agreement to such successors in business or assigns and upon the written acceptance by such successors in business or assign of all Ransburg's obligations hereunder.

This agreement consisting of five pages is submitted in quadruplicate for execution by User. It shall become a contract only upon its execution and acceptance by Ransburg at Ransburg's home office in Indianapolis, Indiana; and shall be effective under the laws of the State of Indiana.

In Witness Whereof, the parties have caused this agreement to be executed by an authorized officer or person effective as of the date of acceptance by Ransburg set forth below.

Executed and accepted by Ransburg this 12th day of March, 1956.

Ransburg Electro-Coating Corp.
(Ransburg)
By Harold Ransburg V.P.

(Seal)

General Electric Company
(User)
By H. B. Miller
H. L. Dept.—Gen. Mgr.
(Title)

eh/2-2-56

PLAINTIFF'S EXHIBIT ZZ-12.

Ransburg Electro-Spray Agreement Serial No. 6366.

This agreement, entered into by and between Ransburg Electro-Coating Corp., an Indiana corporation, having its principal place of business at Indianapolis, Indiana, hereinafter called "Ransburg," and Pemco Corporation, Research Division, Baltimore, Maryland, hereinafter called "User," Witnesseth:

Whereas, Ransburg is the owner of, or otherwise has the right to grant licenses under, certain United States letters patent and inventions pertaining to and covering methods and apparatus used in electrostatically depositing liquid spray particles, the process so used being hereinafter referred to as "said Process," has acquired much engineering data and experience pertaining to said Process, is con-

ducting research in that field, has performed a substantial amount of engineering in adapting said Process to commercial use, has supplied User with some of the results of said engineering pertinent to User's experimental use and has designed special equipment therefor; and

Whereas, User desires to use said Process and benefit from Ransburg's engineering and requests that Ransburg furnish certain special equipment hereinbelow described;

Now, therefore, it is mutually agreed as follows:

1. License: Ransburg hereby grants to User, subject to and in accordance with all of the terms and conditions of this agreement and while the same is in effect, a non-exclusive, nonassignable license to use said Process at User's plant in Baltimore, Maryland, with one unit as shown in Ransburg's Drawing No. 231750, subject to such changes therein and such further specifications as Ransburg may prescribe, for testing and matching liquids. It is specifically understood that the license under this agreement does not give User the right to use said unit for testing the coating of articles for third parties or demonstrating the coating of articles to third parties without Ransburg's consent in writing.

2. Equipment and Supervision: Ransburg will furnish User, for its use of said Process, high voltage apparatus, disk atomizing apparatus, liquid supply apparatus for such atomizing apparatus, and electrical controls, and such other equipment as Ransburg deems desirable, which will be shipped prepaid to User's aforesaid plant upon request of User. As parts of Ransburg's equipment become defective, User agrees to return prepaid to Ransburg promptly all such defective parts. Ransburg will furnish User, at Ransburg's prevailing standard charges, replacements of any equipment furnished by Ransburg under this paragraph that becomes defective.

Ransburg will furnish supervision necessary for placing

its equipment in readiness for operation. Should Ransburg's supervisor make more than one trip to the plant of User or be delayed there for any cause not chargeable to Ransburg, then for each day of such trip or trips or of such delay, User shall pay Ransburg the sum of Seventy-five Dollars and any necessary transportation expenses incurred thereby.

User shall furnish all labor, materials, and equipment necessary for the use of said Process except the equipment and supervision to be furnished by Ransburg in accordance with this paragraph.

The furnishing of equipment, replacements, and supervision by Ransburg is subject to the availability to Ransburg of the necessary component parts of the equipment and replacements, to prior shipment commitments of Ransburg, to strikes and lockouts, whether in the organization of Ransburg or elsewhere, and to accidents, fires, delays in manufacture or transportation, acts of God, court injunctions, or any governmental action, as well as any causes for postponement or non-performance over which Ransburg has no control; and any failure, due to any of such causes, of Ransburg to perform any of its obligations herein set forth shall not be considered a breach of this agreement.

3. Title and Use of Equipment: Title to all equipment furnished by Ransburg including replacements shall at all times remain in Ransburg, and said equipment shall remain personal property regardless of how it is affixed to the realty. Ransburg shall have at all times, during business hours, the right to enter User's premises for the purpose of determining whether its equipment and said Process are being used as herein provided. User shall not have the right, without the written consent of Ransburg, to (1) lease or grant the right to use the equipment furnished by Ransburg to any person, firm, or corporation, (2) remove it from the plant to which it is delivered for installation, or

(3) use it for any purpose or in any manner other than as herein provided.

User agrees that it shall not use or operate Ransburg's equipment with any of the parts or safety devices removed, that it shall follow Ransburg's safety and operating recommendations, and that it shall maintain Ransburg's equipment in as good condition as when installed, ordinary wear and tear from proper use and operation alone excepted.

4. Liability: User agrees that Ransburg shall not be liable to User for any loss, cost, expense, or damage resulting from any failure of said process or equipment to function in any particular manner or to electrostatically coat any particular article or assembly or resulting from the installation, servicing adjusting, presence, use, operation or condition of Ransburg's equipment. Also, User agrees to indemnify Ransburg for any loss, cost, expense, or damage Ransburg may sustain because of any claims by third parties resulting from the installing, servicing, adjusting, presence, use, operation or condition of Ransburg's equipment. User shall be liable to Ransburg for any loss of or damage to, Ransburg's equipment occurring at any time that such equipment is in the possession of User or any of its agents, ordinary wear and tear from proper use and operation alone excepted.

5. Termination: Either party to this agreement shall have the right to terminate this agreement at any time upon giving the other party thirty days' written notice.

After User returns Ransburg's equipment upon termination of this agreement, Ransburg will refund to User the balance of the initial fee paid by User after deducting the following: (a) any expenses incurred by Ransburg as a result of the return of its equipment, (b) the initial cost of that portion of Ransburg's returned equipment which Ransburg considers obsolete or defective, (c) the cost to Ransburg for initial installation and supervision of User's elec-

trostatic unit under this agreement, and (d) the cost to Ransburg for reconditioning the portion of its returned equipment that is not obsolete.

In the event User shall fail to perform any of the conditions or obligations of this agreement, and such failure shall continue or recur after written notice thereof from Ransburg, Ransburg may (without prejudice to its rights to recover any amounts owing by User as herein provided or any damages for breach of this agreement) terminate this agreement and take possession of its equipment forthwith, and for that purpose permission is hereby given Ransburg or any of its agents to enter any premises wherein its equipment is located to discover and take possession of its equipment without notice and without being liable to any suit, action, indictment, or other proceedings by User or anyone claiming under it. Any delay concession or indulgence on the part of Ransburg in enforcing any of its rights on any default shall not be deemed a waiver of such rights.

After notice of termination of this agreement, User agrees to deliver the equipment furnished by Ransburg, to Ransburg at Indianapolis, Indiana, freight prepaid, in as good condition as when installed, ordinary wear and tear incident to its proper use and operation alone excepted.

6. Fees: User agrees to pay to Ransburg an initial fee of Four Thousand Five Hundred Dollars ($4,500.00) within sixty days after date of shipment of Ransburg's equipment or thirty days after date of installation thereof, whichever occurs earlier. In the event User has not requested shipment of Ransburg's equipment prior to the termination of this agreement, or within six months of the date of Ransburg's acceptance of this agreement, whichever is earlier, one-half of the initial fee shall become due and payable forthwith, and the balance of its shall be due and payable as provided hereinabove.

In addition to the above fee, User, agrees to pay, or to

reimburse Ransburg if it should be obliged to pay, directly or indirectly, any taxes, licenses, or fees imposed by the laws of any State, of any political subdivision, of any municipality, or of any other governmental authority by reason of the installation, posession, use, or location of any equipment furnished by Ransburg or by reason of the furnishing of any services by Ransburg pursuant to this agreement. Such sums as may be due under this provision shall be paid separately or added to the invoice for other payments as the law may require or as Ransburg may determine.

If User does not request shipment of Ransburg's equipment prior to the experiation of six months after the date of Ransburg's acceptance of this agreement, Ransburg shall have the right, prior to shipment of its equipment, to change the fees and conditions of this agreement to conform to its policy as of the date of such shipment.

During the term of this agreement, the sum set forth in Paragraph 2 may from time to time be adjusted commensurately with changes, from the value for November, 1950, in the Consumer Price Index, Large Cities Combined, All Items, as determined by the Bureau of Labor Statistics of the U. S. Department of Labor, on the 1947-49 base, or any successor thereto; provided, however, no such adjustment shall be made unless a change of at least ten percentage points has occurred in said index prior to each such adjustment.

7. Future Inventions: User agrees that in the event User acquires, from any source, any inventions, improvements, or any rights under letters patent, domestic or foreign, pertaining to methods and/or apparatus for electrostatically depositing liquid spray particles formed by airless atomization (without the use of compressed air), Ransburg shall have with respect to coating methods and apparatus employing said inventions, improvements, and

the subject matter of said letters patent, a royalty-free, nonexclusive, assignable license, with right to sub-license, such license to be irrevocable except upon voluntary surrender by Ransburg. Patents subject to Ransburg's rights under this paragraph shall include only patents under which User has acquired rights during the term of this agreement, patents under which User has acquired rights within two years following terminations of this agreement, and patents regardless of when User acquired rights thereunder which cover inventions and improvements made within the term of this agreement or within two years following its termination.

8. Execution of Agreement: This agreement sets forth the entire agreement and understanding between the parties as to the subject matter of this agreement, and no statements, conditions, or representations, either oral or written, made by the parties, their employees, or agents, including conditions or provisions appearing in any purchase order or other instrument issued by User, shall be valid or binding unless contained in a written instrument signed by both parties. Ransburg makes no warranties of any kind, express or implied, except as set forth in this agreement.

All the rights and privileges of Ransburg hereunder shall be extended to and inure to the benefit of the successors in business or assigns of Ransburg upon User being given written notice of the assignment of this agreement to such successors in business or assigns and upon the written acceptance by such successors in business or assigns of all Ransburg's obligations hereunder.

This agreement consisting of four pages is submitted in duplicate for execution by User. It shall become a contract only upon its execution and acceptance by Ransburg at Ransburg's home office in Indianapolis, Indiana, and shall be effective under the laws of the State of Indiana.

In Witness Whereof, the parties have caused this agreement to be executed by an authorized officer or person effective as of the date of acceptance by Ransburg set forth below.

Executed and accepted by Ransburg this 21st day of August, 1956.

Ransburg Electro-Coating Corp. (Ransburg)
(Seal) By Gregg S. Ransburg,
Vice-President.

Pemco Corporation, (User)
Research Division,
By (Illegible)
(Title).

ab/7-11-56

PLAINTIFF'S EXHIBIT PPPP.

November 30, 1940

Behr-Manning Corporation
Troy, New York

Attention—E. C. Schacht

Gentlemen:

We have your letter of November 22, and apologize for our delay in acknowledging it, which is due to some of our people being out of the city. We appreciate the information you convey to us, and your interest in our development work, as well as the spirit in which you bring to our attention the fact that you have been interested along similar lines. We are sure that it would be a pleasure for us to arrange to meet with you at some time and place convenient, to discuss any matters of mutual interest.

In the meantime, we note your reference to patents cov-

ering many of your operations, and in checking over our volume of patents we find one of your patents relating to abrasive processing. It would be interesting to us if you could give us a list of your patents pertaining to electrostatic processing, in order that we may better identify your work along this line so far as shown in issued patents.

We would be very pleased to meet with you at Troy, and would be glad to hear from you as to when it would be quite convenient.

Yours very truly,
Harper J. Ransburg Company
By.....

HPR:Ey

(Letterhead of Behr-Manning Corporation,
Troy, New York.)

May 16, 1941.

Mr. Harper J. Ransburg,
Harper Ransburg Company,
Indianapolis, Indiana.

Dear Mr. Ransburg:

As I informed you recently on the telephone, we asked the Minnesota Mining & Manufacturing Company if they would be willing to grant access to their pending electrostatic patent applications in accordance with our program to examine the pending electrostatic patent applications owned by the Ransburg and Behr-Manning companies or those to which either company will subsequently acquire ownership. We have had no reply to date but on Tuesday of the present week Mr. Gallagher saw Mr. W. J. McKnight, President of Minnesota Company in Chicago and was advised that we would have their answer

within a short time. Mr. McKnight was not too enthusiastic over the prospect of opening up the pending applications but promised to give the matter very careful consideration.

We will notify you immediately upon receipt of the Minnesota Company reply.

Yours very truly,
Behr-Manning Corporation.
Elmer C. Schacht,
Vice President.

E. C. Schacht
BS

August 9, 1944

Mr. Harold P. Ransburg
Harper J. Ransburg Company
Indianapolis 7, Indiana

Dear Mr. Ransburg:

In accordance with our recent conversation in Chicago, I am enclosing a list of all United States patents which have been issued to Behr-Manning or which Behr-Manning owns and controls. In addition to this list of patents, there are, of course, a large number of applications on electrostatic inventions still pending. We also have corresponding foreign patents in several of the principal foreign countries.

It is my understanding that you will submit a similar list of United States electrostatic patents which are owned or controlled by your company at your earliest convenience.

I greatly enjoyed my visit with you, your father and Dr. Miller and feel that it will be to the mutual advantage of both our companies to continue our discussion on the subject of the Chicago meeting. Since I did not return to

Troy until yesterday, there has been no opportunity to discuss the matter of our present and future relationship in the electrostatic development with the several people in our organization who are interested in the matter but I will do so within a day or two.

As I informed you in Chicago, I will see Mr. Guyer in New York on Thursday. Shortly after this interview, it probably will be in order for us to hold another conference and you may expect to hear from me probably by telephone at the end of the present week or early next week. In the meantime, I hope that you will pass on any thoughts or conclusions which you have developed since our meeting.

Yours very truly,

Behr-Manning Corporation

.....

Vice President.

E. C. Schacht
BS
Enc.

Electrostatic and Electromagnetic patents owned and controlled by Behr-Manning Corp.

Re. 20,660
Re. 22,419
1,854,071
2,027,087
2,027,308
2,027,309
2,047,525
2,038,182
2,087,260
2,097,233
2,152,077
2,186,385
2,173,032
2,173,078
2,174,328
2,217,136
2,218,445
2,221,336
2,222,539
2,223,476
2,231,334
2,245,301
2,248,064
2,248,853
2,279,341
2,281,588
2,297,837
2,318,870
2,318,871
2,323,877

September 27, 1944

Mr. Harper J. Ransburg
Harper J. Ransburg Company
Indianapolis 7, Indiana

Dear Mr. Ransburg:

In the proposed cross licensing agreement enclosed in an accompanying letter, you will note in paragraphs 3 and 4 that Ransburg and Behr-Manning have reserved unto themselves the right to bring infringement actions under and defend the validity of their own patents. If this provision is acceptable to you, it will solve our problem with DeVilbiss because we can separately guarantee DeVilbiss immunity from suit for infringement of Smyser which is all that they had previously negotiated for in their request for a non-exclusive license.

As soon as you have indicated that the proposed cross licensing agreement is satisfactory, we will communicate with DeVilbiss and arrange to give them written assurance in regard to Smyser. We will also want to inform the General Electric Company of our contract with you and the settlement with DeVilbiss because we are anxious to continue to cooperate with the General Electric Company in several fields.

Yours very truly,
Behr-Manning Corporation

.....
Vice President.

E. C. Schacht
BR

September 27, 1944

Mr. Harper J. Ransburg
Harper J. Ransburg Company
Indianapolis 7, Indiana

Dear Mr. Ransburg:

Enclosed you will find a copy of the draft of the proposed agreement between the Harper J. Ransburg Company and Behr-Manning relating to the cross licensing of electrocoating patents owned by the respective parties. This agreement was drawn by our attorney, Mr. George Link, Jr., of New York, following an outline prepared by Mr. Gallagher after our meeting in Buffalo.

While we believe that the enclosed contract covers all of the necessary features of our agreement, I would like to call your attention to two items of possible future interest, namely, (1) whereas in paragraphs 3 and 4 Ransburg and Behr-Manning reserve to each other the sole right to prosecute actions for infringements and defend actions involving the validity of their own patents, it is, of course, understood that Ransburg or Behr-Manning could bring or defend actions relating to infringement or validity of patents belonging to the other providing permission was secured from the latter; and (2) Exhibits A and B have not been annexed for the reason that our counsel deemed it advisable not to include in the agreement the grant of rights to inspect patent applications belonging to both parties. This will be done in a separate letter after we have come to final agreement as to the contents of the cross licensing document and will be arranged for by transmitting Exhibits A and B with a separate letter covering the specific applications to which each party is to have access.

We would like to make plans to visit you in Indianapolis and tentatively I would like to suggest the 10th and 11th

of October. There probably will be three in our party and while we may not be able to find enough work to keep us busy for two days, it was felt best to allow this amount of time in view of the fact that we may want to carefully review the pending patent applications.

Will you kindly notify me if the 10th and 11th of October are satisfactory and if so, will you also please make hotel reservations for the night of the 10th since we will be arriving on the morning of that day. We will bring copies of all pending applications and will also be prepared to consummate the cross licensing agreement if it is in condition for signature by that time.

Yours very truly,
Behr-Manning Corporation

.....

Vice President.

E. C. Schacht
BR

(Form of Western Union Telegram.)

October 5, 1944

Mr. Elmer C. Schacht
Behr-Manning Corp.
Troy, New York

Acknowledging your letter of 27th answer to which has been delayed due to illness of our attorney your proposed agreement is not acceptable as drawn and feel it does not cover our understanding in Buffalo. Believe this can best be clarified in forthcoming conference. Unfortunately our schedule does not permit meeting 10th and 11th. Suggest 14th and 15th.

Harper J. Ransburg Co.

HPR:rm
3:45 P.M.
Night Letter

PLAINTIFF'S EXHIBIT NO. QQQQ.

March 12, 1948.

Mr. E. M. Ransburg
Ransburg Electro-Coating Company
1234 Barth Avenue
Indianapolis, Indiana

Dear Mr. Ransburg:

A short while ago your patent counsel Mr. Trask, in company with Mr. L. P. Schact of Behr-Manning, discussed with me the possibility of a license to the Ransburg Electro-Coating Company under U. S. Patents Nos. 2,221,338 and 2,097,233.

The general proposal made by Mr. Trask was that the license should be exclusive for the field of deposition of liquid coating materials, and that the royalties should be a lump sum amount to be suggested initially by us. After due consideration, we have concluded that we would prefer not to enter into such an agreement, and that any license agreement should be based rather on a percentage of sale royalty for such equipment sold by you as may make use of the claims of the patents involved.

It is our opinion that the claims of the patents have specific bearing on your products rather than being of merely general interest, which was the point of view expressed by Mr. Trask. In view of this, we believe that the royalty provision of any proppsed license would be more appropriately placed on a continuing basis than a paid-up amount.

We would be very pleased to discuss this further with you at your convenience, and feel sure that some mutually satisfactory agreement can be reached.

Yours very truly,

JWH:b J. W. Hinkley.

PLAINTIFF'S EXHIBIT NO. SSSS.

Western Electric Company
195 Broadway
New York

April 25, 1941.

Lockwood, Goldsmith & Galt,
Fletcher Trust Building,
Indianapolis, Indiana.

Re: Pugh Patent No. 1,855,869

Attention Ralph G. Lockwood, Esq.

Gentlemen:

As indicated in Mr. Orr's letter of April 22, 1941, your inquiry of April 15 with reference to the above mentioned patent has been referred to this office. We find that this patent has not been, and is not now being used in connection with our manufacturing operations.

We are prepared to discuss the matter with you or your client on the basis of a non-exclusive license to your client or on the basis of assignment of the patient. Negotiation of exclusive licenses is contrary to our established policy.

We shall appreciate hearing from you as to whether a non-exclusive license or assignment of the patent would be of interest to your client.

Yours very truly,
(Sgd.) H. H. Timbers,
Contract License Manager.

RCL:McV

(Letterhead of Lockwood, Goldsmith & Galt,
Indianapolis, Indiana.)

April 28, 1941.

Harper J. Ransburg Company,
1234 Barth Avenue,
Indianapolis, Indiana.

Attention Mr. Harold P. Ransburg.

Dear Harold:

Enclosed is copy of a letter just received from the Western Electric Company which indicates that we will have no trouble in doing business with them if we can get together on a reasonable figure.

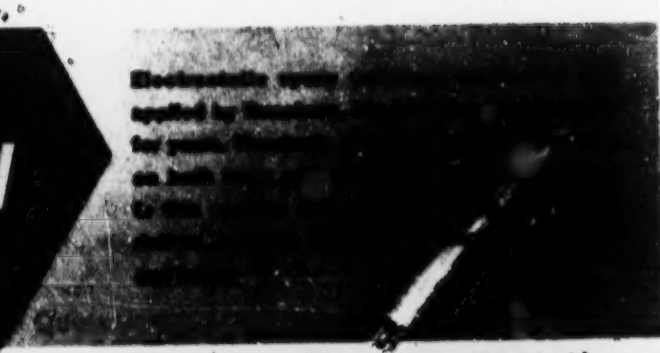
We would recommend that we answer the letter by requesting them to name a price for the assignment of the patent and also a price for royalty on an unexclusive license. I believe we should also bring out in the letter the fact that the patent has only a nuisance value.

Best regards.

Sincerely yours,
Lockwood, Goldsmith & Galt,
Thomas B. Huestis.

5/OH
Enc.

WHAT and HOW



PLAINTIFFS EXHIBIT UUUU

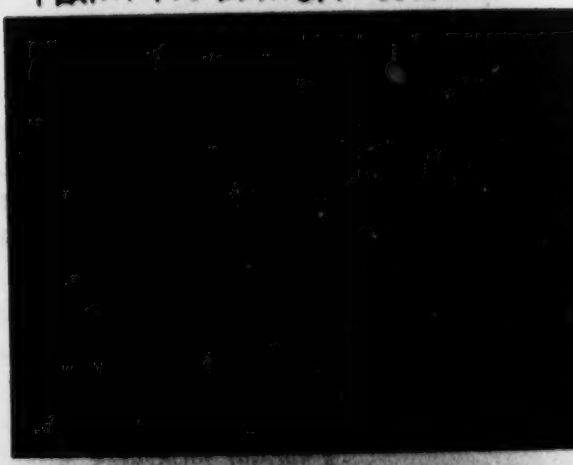
The Ransburg No. 2 Process is the ONLY spray method capable of almost 100% painting efficiency on a wide variety of production jobs.

The basic process is shown in the accompanying diagrams. Articles to be painted are carried by a conveyor into the coating zone. They are grounded electrically by their hangers, and depending upon their shape, may be rotated.

A voltage pack is connected to a paint sprayer, creating an electrostatic field between it and the moving articles. The paint sprayer (right—top) has a disk atomizer. Diagram below shows the bell-shaped atomizer.

On many jobs, it has been found advantageous to use a reciprocating disk. Products of all sizes—including large parts such as refrigerator cabinets and doors, may be successfully coated with the reciprocating disk. Multiple strokes of the disk make possible the application of heavy, uniform coatings in a single loop. Speed of the disk travel can be automatically varied within the stroke to apply more or less paint in certain areas as desired. The reciprocating disk may be either floor or ceiling mounted.

A pump unit supplies paint through the hollow drive shaft of the atomizer. Rotation feeds the paint at a uniform rate through the atomizer to its outer edge. Atomization occurs under the influence of the electrostatic field, producing a spray pattern of electrically charged particles. The irresistible attraction of the field pulls the spray to the moving articles, and almost all of the spray is deposited.



PLAINTIFF'S EXHIBIT OOOOO.

To Be Retained by Bidder
Ford Motor Company

Request for Quotation

Binks Manufacturing Company
105 E. Baltimore,
Detroit 2, Michigan
Important

Gentlemen

Please submit your lowest net price and terms of payment on materials listed below, subject to the following conditions.

If unable to supply amount specified please show hereon on the quantity you can supply and your guaranteed deliveries.

Please insert Net Unit Price opposite each item and mail copy, properly signed to this company, retaining bidder's copy for your reference.

We reserve the privilege of either accepting or rejecting your proposition within thirty days after receipt of your reply.

The following information must be filled in:

F.O.B. Lima, O. To be shipped via CL or LCL LCL

Shipping Point Chicago, Illinois

Weight Freight Rate Per Cwt.

Payment Terms Per quotation 56-26 attac'ed.

Your Best Delivery date: 16 weeks from rec'pt of order.

By K. Bolthouse
Ford Motor Company Purchasing Dept.

Date 12-1-55

Your Bid Should Reach Us Not Later Than 1-3-56

When Correspondence Is Necessary, Please Refer to No. P IR-94635

Delivery Required at Lima Engine Plant

Quantity and Description	Unit Weight	Net Unit Prices (Not Lot Prices)
The Prices Quoted Herein Are the Lowest Net Prices		
Kindly present your quotation in triplicate to Design Fabricate and Install the following:		
(1) Electrostatic Spray Unit for Mercury and Lincoln Exhaust Manifolds, Lima Plant, 1958 Program, in accordance with Spec. 115-EF-1240, dated 11-16-55. For painting Mercury and Lincoln Exhaust Manifolds. Your price is to be firm and of sufficient detail so that intelligent breakdown of same can be made. Also, indicate earliest delivery date.		Prices per Binks quotation 56-26 and 56-26-Alter. attached

FIR-94635 KB:md

Purchase Notice Number

Any suggestions relating to proposed changes in the supplies covered by the request for quotation which you believe will result in improvements in the supplies or their use will be welcomed. Ford Motor Company acquires no rights under your patents but you acknowledge that such suggestions are not submitted on a confidential basis and that all rights, claims and remedies in respect of them (other than those arising from such patents) are waived

please advise us of your lowest quotation for supplies conforming to both the blueprint design and any suggested changed design.

Address Reply:
Ford Motor Company
3000 Schaefer Road
Dearborn, Michigan

Attention: Mr. K. Bolthouse
Room 160—Adm. Annex

Firm Name
Binks Manufacturing Company
Signed by Officer of Company
Burke B. Roche,
President
Date 1/10/56

HHG:JT 3

Binks Manufacturing Company
3114 Carroll Avenue
Chicago 12, Hl.

Jan. 25, 1956

56-26-Alternate,
Revised

K. Bolthouse,
Rm. 160, Adm. Annex

cc: Binks Detroit
R. T. Hardy
Industrial
BBR
Extra
General

Ford Motor Company
3000 Schaefer Road
Dearborn, Michigan

Subject: Your No. PIR-94635
Lima Engine Plant

In compliance with your request, we are pleased to submit the following revision to our Quotation 56-25, Alternate, page No. 2, dated Jan. 10, 1956:

We wish to submit Binks alternate (revised) proposal for electrostatic painting of exhaust manifolds substituting the Binks electrostatic emitter in place of the Ford Motor Company electrostatic gun. This change alters the original Ford system as follows:

1. The booth, booth accessories and high voltage supply will remain the same.
2. The hydraulic system will not be required on our unit.
3. The four Ford Motor Company guns and supports are replaced by three Binks electrostatic emitters, emitter field frame and supports.

4. The pneumatic and paint control system is simplified by connecting the Binks emitter together. Only one paint regulator is used to supply all three units and one solenoid operated three-way air valve built into each emitter unit. An automatic flushing system using Ross solenoid valves and an electric timer will be used between the paint regulator and the emitters for flushing emitters with air and thinner.
5. The electrical control system is revised to suit the changes made.

Price Delivered & Erected Lima, Ohio.....$17,890.00
Delivery: 14 weeks from receipt of order.

This bid shall not be binding upon Binks Manufacturing Company as an offer unless and until Ford Motor Company shall indemnify Binks Manufacturing Company and hold it free and harmless against any and all suits or causes of action which may be brought against Binks Manufacturing Co. for infringement and/or contributory infringement of Starkey et al. patent 2,685,536 by reason of manufacturing and furnishing to Ford Motor Company the devices comprising the subject matter of said bid or by use by Ford Motor Company of said devices.

Terms and conditions of our original quotation 56-25 or Jan. 10, 1956 (pages 3 and 4) to apply equally to this revision.

Binks Manufacturing Co.
Burke B. Roche,
President

HHG:JT 3

Binks Manufacturing Company
3114 Carroll Avenue
Chicago 12, Ill.

Ford Motor Company
3000 Schaefer Road
Dearborn, Michigan

cc: Binks Detroit
R. T. Hardy
Binks Cleveland
Industrial
BBR
Extra
General

Jan. 10, 1956
56-26

K. Bolthouse,
Room 160, Adm. Annex

(Same quote to Ford Motor Co. for Cleveland Engine Plant #1 quote no. 56-25)

Subject: Your No. PIR-94635
Lima Engine Plant

In accordance with your request of Dec. 1, 1955, we are pleased to quote on the following:

Electrostatic Paint Booth & Equipment

for exhaust manifolds in accordance with your specifications and drawings, 115-ZE-64, 70-ZE-1060, 70-ZE-1061, 49-ZE-18, 70-ZE-1062 and 56-ZU-2, SH #9.

Price, Delivered and Erected Lima, Ohio.....$24,800.00
Delivery, 16 weeks from receipt of order.

The above bid shall not be binding upon Binks Manufacturing Company as an offer unless and until Ford Motor Company shall indemnify Binks Manufacturing Company and hold it free and harmless against any and all

suits or causes of action which may be brought against Binks Manufacturing Co. for infringement and/or contributory infringement of any and all unexpired patents by reason of manufacturing and furnishing to Ford Motor Company the devices comprising the subject matter of said bid, or by use by Ford Motor Company of said devices.

56-26—Alternate

Alternate

(Ref. Dwg. No. SK-624)

We wish to submit Binks alternate proposal for electrostatic painting of exhaust manifolds substituting the Binks electrostatic emitter in place of the Ford Motor Company electrostatic gun. This change alters the original Ford system as follows:

1. The booth, booth accessories and high voltage supply will remain the same.
3. The hydraulic system will not be required on our unit.
3. The four Ford Motor Company guns and supports are replaced by three Binks electrostatic emitters, emitter field frame and supports.
4. The pneumatic and paint control system is simplified by connecting the Binks emitters together. Only one paint regulator is used to supply all three units and one solenoid operated three-way air valve simultaneously controls the air piston operated needle valve built into each emitter unit. A manually operated valve is used between the paint regulator and the emitters for flushing the emitters with air and thinner.
5. The electrical control system is revised to suit the changes made.

Price Delivered & Erected Lima, Ohio.....$16,925.90
Delivery: 14 weeks from receipt of order.

The above bid shall not be binding upon Binks Manufacturing Company as an offer unless and until Ford Motor Company shall indemnify Binks Manufacturing Company and hold it free and harmless against any and all suits or causes of action which may be brought against Binks Manufacturing Co. for infringement and/or contributory infringement of Starkey et al. patent 2,685,536 by reason of manufacturing and furnishing to Ford Motor Company the devices comprising the subject matter of said bid or by use by Ford Motor Company of said devices.

Quotation

Binks Manufacturing Co.
3114-44 Carroll Avenue
Chicago 12, Ill.

Date Jan. 10, 1956
Our No. 56-26 and 56-26
Alternate

Ford Motor Company

Page No. 3

Purchaser: It is understood and agreed that the Purchaser is to do the following, unless otherwise specified:

Assume all charges for any changes made after approved drawings are sent to Binks Manufacturing Company, according to the amount of work done on the order and the cost of the changes requested.

Furnish, install and connect all electrical equipment—such as lights, switches, motor starters, etc. (By Binks)

Provide material and labor to connect material drains and overflows on equipment to the building waste line.

Provide and run specified water supply lines to the equipment and make final connections to the equipment and to the external water seals of the pumps.

Clear and prepare the site for erection.

Unload the equipment from trucks or cars. (By Binks)

Provide safe storage space, if necessary, and deliver to the site of erection as required by the erecting crew.

Furnish the necessary material, labor, tools and equipment to cut, repair and flash all necessary holes in floors, walls, ceilings, roofs and windows for the proper installation of the equipment.

Provide, install and connect sprinkler heads as required. (By Binks)

Furnish and install all compressed air lines as required, for operation of the spray painting equipment.

Provide foundations, masonry work, grouting, supports, builders' and joiners' work, and all excavations, according to detailed drawings presented by the Binks Manufacturing Company.

Assume all Local, State and Federal taxes of any kind or character in connection with the purchase of the above.

Guarantee: The equipment manufactured by us is guaranteed to be free from all latent defects in material and workmanship disclosed under normal use and service, and should any part thereof be found, within one year from date of shipment, to be so defective at the time furnished, we will repair said part. This guarantee shall not apply to any of our apparatus which shall have been repaired or altered outside of our factory in any way, so as in our judgment, to affect its stability, nor which has been subjected to misuse, negligence or accident. Our responsibility, however, is expressly limited to the material furnished by us, and we are not liable for any damages to building, contents, products or persons.

Page No. 4

In the case of standard apparatus furnished but not manufactured by us such as Motors, Ovens, Heaters, Controls, etc., we extend to you the same guarantee as is is given by their respective manufacturers.

Shipment: All dates fixed for shipment, delivery and installation as set forth herein, are made in good faith and we will use all reasonable diligence to insure adherence to these promises, but we shall not be liable for damage due to delays.

If this quotation is based on a delivered and erected price, the erection is quoted on the basis of installing this equipment during regular working hours of the regular 40 hour work week. Work outside of this period will be performed on a written order from the Purchaser. Charges will only be made for the overtime labor allowance paid above the regular hour rates.

Costs of erection included herewith contemplate the completion of work by others (wiring, drains, steam piping, etc.), in time to allow Binks' supervisor to test and inspect equipment before leaving the job. If it becomes necessary for the Binks' supervisor to return to the job for the purpose of starting the job, same will be done at the regular rate of $50.00 per day plus transportation to and from the job.

We shall not be liable for any loss or damage resulting from delay in shipment due to Fires, Floods, Strikes, Riots, Thefts, Accidents, or any other causes beyond our reasonable control.

Purchaser is to provide electric service and make necessary electrical connections required at the time of erection for lighting, welding machines, electric drills, etc.

Where state laws or municipal ordinances require permits to install equipment covered by this quotation, it is

understood the purchaser assumes the responsibility for securing such approval and is to pay for any and all fees in connection therewith.

Terms: With Erection:

Partial shipments of an order will be made as material becomes available and the material included in such partial shipments will be invoiced as shipped. Payment of 75% of each invoice will become due 30 days after date of delivery of partial shipments to the job, and the remainder of such invoice will become payable to the extent of 15% thereof on completion of the work and the balance upon approval thereof.

Terms: Without Erection

Net 30 days after date of Invoice. Partial shipments of an order may be made as material becomes available, and the material included in such partial shipments will be invoiced when shipped. Payment therefor will become due thirty days from date of invoice.

Date 1/10/56 Terms As above Total F.O.B. As indicated

Binks Manufacturing Co.
Approved by
Burke B. Roche,
President

Accepted:

.....

.....

Date.....

Ford Motor Company

Equipment Specification No. 115-EF-1240
P.N. No..... P.O. No.....
P.I.R. No. 94635

Subject: Electrostatic Paint Booth and Equipment for Mercury and Lincoln Manifolds (XE-31575) (XE-31573)

Plant Lima Engine Plant

Included Dwg's 115-ZE-64, 70-ZE-1060, 70-ZE-1061, 49-ZE-18, 70-ZE-1062 and 56-ZU-2, Sh. #9

Date 11-16-55

Approvals
F. Webster 11-21-55
J. B. Lamson 11-21-55
R. L. Valmans 11-21-55

Revisions

Dwg. No.	Sheet No.	Location	Date	Remarks

W. C. Kryska,
Supervisor Plant Layout, Equipment and Material Handling Section, Engine Manufacturing Engineering, Engine and Foundry Division.

Instructions to Bidders.

A. Proposals will be received by the Ford Motor Company, Facilities and General Supplies Purchasing, Administration Building, Dearborn, Michigan.

B. Proposals will be itemized, detailed and integrated to cover all component equipment, accessories and trades

necessary to complete (1) Electrostatic spray unit, as specified hereinafter, including installation.

C. Proposals shall be submitted in quintuplicate (one original and four copies) on bidder's letterhead stationery, and enclosed in an opaque envelope plainly marked "Proposal for Electrostatic Paint Unit for Lima Engine Plant, delivered to the aforementioned address on or before the time set for termination of the bidding.

D. Should any bidder find any discrepancies in the specification, or should he be in doubt as to their meaning, he shall at once notify Purchasing Engineering Department, who will clarify the matter in question by letter. Oral instruction is not binding until confirmed by letter or revision to specification.

E. In the event some product, process, finish or other requirement is specified, but is improcurable at the time of preparing proposal, the bidder shall base his proposal upon procurable substitutes, and shall describe such substitutions in a letter accompanying his proposal.

F. If the bidder finds he is not capable of bidding the equipment as specified, he may submit proposals on equivalent equipment, providing his proposal shall satisfy the production requirements as they are specified, or should the bidder be capable of proposing more than one type of equipment, he may do so, providing the proposals are enclosed in separate envelopes, and each proposal is complete unto itself.

G. Immediately after contract is awarded the successful contractor shall contact the Ford Motor Company, Manufacturing Engineering Department Equipment Section, Engine and Foundry Division regarding details of time schedule and working procedure. Contractor shall then prepare a Progress Schedule for his work, giving the starting and completion date for the various items of work included in this contract. Contractor shall submit this

schedule to Ford Motor Company Purchasing Department for approval.

H. The contractor shall be responsible for design and proper functioning of the installation and shall immediately make any adjustments or corrections of defect found necessary.

J. The bidder shall be held to have examined the premises and site, and to have satisfied himself as to the condition of the premises before the delivery of his proposal.

K. It is to be understood that the work hereinafter described shall be complete in every detail, even though every item necessarily involved is not particularly mentioned. The bidder shall be required to provide all labor, materials and supervision necessary for the entire completion of the work intended to be described, and shall not avail himself of any manifestly unintentioned error or omission, should such exist, unless he shall explicitly state that which he intends to provide at the time he submits his proposal.

L. No work shall be done or equipment obtained until (1) set of prints bearing approval of Ford Motor Company, Manufacturing Engineering Department, Equipment Section, Engine and Foundry Division is received by contractor. Where errors or omissions are discovered later, they will be immediately corrected by contractor.

M. Spray booth designated in this specification shall be designed and fabricated as per Ford Industrial Equipment Standards BAX, Sections 3, 4, 6, 8, 10, 11 and 18. All work shall be complete including the installation and exhaust system. All state and local codes and underwriters regulations shall be complied with in relation to the fabrication and installation of the booth.

N. The unloading of material and equipment and the moving of same to the job site shall be the responsibility of the vendor and shall be quoted as a separate item.

P. The Ford Motor Company will not be liable for the safekeeping of any equipment or supplies other than its own.

Q. The successful bidder will be furnished reference part prints and sample parts as required.

1. Purpose:

The purpose of the electrostatic paint booth and equipment is twofold; enclose the area within which exhaust manifolds are to be painted and to electrostatically paint the surface of the Mercury and Lincoln exhaust manifolds (XE-31575) (XE-31573) Oper. (40). The parts shall be painted while traveling on an overhead monorail conveyor. The paint to be used is M-1713-A air dry enamel.

2. Type:

A. This booth shall be of the dry type, closed, manless, with side exhaust.

B. The manifolds will be carried (two per hook, one right hand and one left hand) on swivel hooks incorporating a sprocket which will engage a length of silent chain (supported as a rack) within the booth. The hooks will be spaced at two-foot centers and will travel approximately 15 ft/min. The section of conveyor rail extending throughout the booth shall be amply supported and shielded as shown on Drawing 115-ZE-64.

3. Description of Parts:

The Mercury and Lincoln exhaust manifolds (XE-31575) (XE-31573) are irregular shaped common castings, right and left hand, of grade "B" cast iron. The approximate size is 17¼" by 8".

4. Capacity:

The equipment supplied shall be capable of electrostatic painting of 650 exhaust manifolds per hour @ 80 percent efficiency.

5. Construction:

The booth should be constructed as an enclosed platform with #18 gr. (min.) side panels. Due to the affinity of static electricity to sharp points and surfaces, special attention should be given to the elimination of such interferences within the area of the paint distributors (56-ZU-2, sheet #9).

The platform (of steel construction) is for the purpose of supporting the electrostatic equipment and to provide accessability to the damper and exhauster.

6. Lighting:

The lighting shall be of the type specified and shall be focused as shown on 115-ZE-65, sheet #1.

7. Safety:

Ford Motor Company has submitted this design to F. I. A. for their approval. However, the successful bidder is responsible for obtaining permits and approval for the construction, installation and operation of this booth. The O. S. and Y valves, in the sprinkler system, should be located at a minimum of (15) feet beyond the booth.

8. Cleanouts:

All tanks and enclosed compartments and ducts shall be provided with cleanout doors, located in convenient and accessible places.

9. Successful Bidder to Furnish:

A. Booth enclosure, platform, ladder and railing.

B. All ductwork, including stacks to extend 10 feet above highest point of building roof.

C. All required sprinkler heads and piping from existing mains.

D. Wiring to existing power supply.

E. Non-sparking axial fan complete with motor and drive.

F. 4"-I-7.7# monorail through booth complete with supporting structure.

G. Paint delivery and distribution equipment (including 56-ZU-2), piping and controls.

H. Electrostatic equipment, mounting, insulation and controls.

I. Flushing equipment, piping and controls.

J. Pneumatic piping and controls.

K. Centralized control panel for electrical and plumbing equipment mounted flush (or nearly flush) at the location shown.

L. Unloading and moving of material to job site.

M. Complete erection, paint, operation and inspection.

10. Ford Motor Company to Furnish:

A. Plant Layout print for location.

B. Drain deck and drain (if required).

C. Hole in roof and roof framing for exhaust system.

D. Utilities:

Water—45 P. S. I.
Electric—440 volt, 3 phase, 60 cycle.
Air—95 P. S. I.

E. Conveyor chain, trollies, hooks and exterior monorail.

11. Electrical and Hydraulic:

All motors shall conform to Ford Motor Company J. I. C. Standards. Shall be approved by Ford Motor Company.

All electrical, pneumatic and hydraulic equipment and installation thereof by the vendor shall conform to Ford Motor Company J. I. C. Standards.

Successful bidder shall furnish a complete stock list of

controls proposed for subject equipment. Ford Motor Commany to approve, request changes and/or reserve the right to furnish any or all of the controls. No fabrication or ordering of material shall be made until approval of preliminary drawings by Ford Motor Company.

Note: Latest revision of Ford Motor Company J. I. C. Standards.

12. Drawings:

Three (3) sets of preliminary prints shall be furnished by the vendor as soon as possible after having received the order. These prints shall give a complete engineering breakdown. One (1) set will be returned to the vendor with preliminary and general arrangement approval by Ford Motor Company. The tracings shall be changed or corrected, if necessary, and five (5) sets of finalized prints shall be furnished for final approval.

13. Delivery:

Outside contractor shall set forth in his proposal the earliest date, after receipt of order, upon which erection can be completed.

PLAINTIFF'S EXHIBIT PPPPP.

To Be Retained by Bidder
Ford Motor Company

Request for Quotation

Binks Manufacturing Company
105 Baltimore E.
Detroit 2, Michigan

Important

Gentlemen

Please submit your lowest net price and term of payment on materails listed below, subject to the following conditions.

If unable to supply amount specified please show hereon the quantity you can supply and your guaranteed deliveries.

Please insert Net Unit Price opposite each item and mail copy, properly signed to this company, retaining bidder's copy for your reference.

We reserve the privilege of either accepting or rejecting your proposition within thirty days after receipt of your reply.

The following information must be filled in:

F. O. B. Cleveland, O. To be shipped via ,
CL or LCL LCL

Shipping Point Chicago, Illinois
Weight.....Freight Rate per CWT.....
Payment Terms per quotation 56-25 attached.
Your Best Delivery Date: 16 weeks from rec'pt of order.

By K. Bolthouse

Date 10-21-55

Your Bid Should Reach Us Not Later Than 11-15-55

When Correspondence Is Necessary, Please Refer to No. P IR-94556

Delivery Required at Cleveland Engine Plant No. 1

Quantity and Description	Unit Weight	Net Unit Prices (Not Lot Prices)
The Prices Quoted Herein Are the Lowest Net Prices		
Kindly present your quotation, in triplicate, to cover the following:		
Electrostatic Paint Booth and Equipment for Exhaust Manifolds, per specifications attached hereto. Prices to be broken down to include:		See quotation 56-25 and 56-25 Alternate attached.
1. Material & Fabrication		
2. Motors		
3. Controls		
4. Field Piping		
5. Field Wiring		
6. Field Painting		
7. Motors		
8. Controls		
Part No. EDC-9428-29-30-31—Exhaust Manifolds. Your price is to be firm and of sufficient detail so that an intelligent breakdown of same can be made, also indicate earliest delivery date.		

Any suggestions relating to proposed changes in the supplies covered by the request for quotation which you believe will result in improvements in the supplies or their use will be welcomed. Ford Motor Company acquires no rights under your patents but you acknowledge that such suggestions are not submitted on a confidential basis and that all rights, claims and remedies in respect of them (other than those arising from such patents) are waived. Please ad-

vise us of your lowest quotation for supplies conforming to both the blueprint design and any suggested changed design.

Address reply:

Ford Motor Company
3000 Schaefer Road
Dearborn, Michigan

Attention: Mr. K. Bolthouse
Room 160—Adm. Annex

Firm Name Binks Manufacturing Company

.....

Signed by Officer of Company
Burke B. Roche, *President.*

KB:ls
PIR-94556

Date 1/10/56

Binks Manufacturing Company
3114 Carroll Avenue
Chicago 12, Ill.

HHC:JT 3

Jan. 25, 1956
56-25-Alternate Revision
Mr. K. Bolthouse
Room 160, Adm. Annex

Ford Motor Company
3000 Schaefer Road
Dearborn, Michigan

CC: Binks Detroit
R. T. Hardy
Binks Cleveland
Industrial
BBR
Extra
General

Subject: Your No. PIR 94556
Cleveland Engine Plant No. 1

In compliance with your request, we are pleased to submit the following revision to our Quotation No. 56-25, Alternate, page No. 2, dated Jan. 10, 1956:

We wish to submit Binks alternate (revised) proposal for electrostatic painting of exhaust manifolds substituting the Binks electrostatic emitter in place of the Ford Motor Company electrostatic gun. This change alters the original Ford system as follows:

1. The booth, booth accessories, and high voltage supply will remain the same.
2. The hydraulic system will not be required on our unit.
3. The four Ford Motor Company guns and supports are replaced by three Binks electrostatic emitters, emitter field frame and supports.

4. The pneumatic and paint control system is simplified by connecting the Binks emitter together. Only one paint regulator is used to supply all three units and one solenoid operated three-way air valve built into each emitter unit. An automatic flushing system using Rose solenoid valves and an electric timer will be used between the paint regulator and the emitters for flushing emitters with air and thinner.
5. The electrical control system is revised to suit the changes made.

Price, Delivered & Erected Cleveland Ohio.....$17,890.00

Delivery: 14 weeks from receipt of order.

This bid shall not be binding upon Binks Manufacturing Company as an offer unless and until Ford Motor Company shall indemnify Binks Manufacturing Company and hold it free and harmless against any and all suits or causes of action which may be brought against Binks Manufacturing Co. for infringement and/or contributory infringement of Starkey et al. patent 2,685,536 by reason of manufacturing and furnishing to Ford Motor Company the devices comprising the subject matter of said bid or by use by Ford Motor Company of said devices.

Terms and conditions of our original quotation 56-26 of Jan. 10, 1956 (pages 3 and 4) to apply equally to this revision.

Binks Manufacturing Co.
Burke B. Roche, *President.*

Binks Manufacturing Company
3114 Carroll Avenue
Chicago 12, Ill.

Jan. 10, 1956

56-25

Mr. K. Bolthouse
Room 160, Adm. Annex

HHC:JT 3

Ford Motor Company
3000 Schaefer Road
Dearborn, Michigan

CC: Binks Detroit
R. T. Hardy
Industrial
BBR
Extra
General

Subject: Your No. PIR-94556
Cleveland Engine Plant No. 1

In accordance with your request of Oct. 21, 1955 we are pleased to quote on the following:

Electrostatic Paint Booth & Equipment

for exhaust manifolds in accordance with your specifications and drawings 115-ZE-64, 10-ZE-1068, 70-ZE-1061, 49-ZE-18, 70-ZE-1062, and 56-ZU-2, Sh #9.

Price, Delivered & Erected Cleveland, Ohio.....$24,800.00

Delivery: 16 weeks from receipt of order.

The above bid shall not be binding upon Binks Manufacturing Company as an offer unless and until Ford Motor Company shall indemnify Binks Manufacturing Company and hold it free and harmless against and all suits or causes of action which may be brought against Binks Manufac-

turing Company for infringement and/or contributory infringement of any and all unexpired patents by reason of manufacturing and furnishing to Ford Motor Company the devices comprising the subject matter of said bid, or by use by Ford Motor Company of said devices.

Alternate

We wish to submit Binks alternate proposal for electrostatic painting of exhaust manifolds substituting the Binks electrostatic emitter in place of the Ford Motor Company electrostatic gun. This change alters the original Ford system as follows:

1. The booth, booth accessories, and high voltage supply will remain the same.
2. The hydraulic system will not be required on our unit.
3. The four Ford Motor Company guns and supports are replaced by three Binks electrostatic emitters, emitter field frame and supports.
4. The pneumatic and paint control system is simplified by connecting the Binks emitters together. Only one paint regulator is used to supply all three units and one solenoid operated three-way air valve simultaneously controls the air piston operated needle valve built into each emitter unit. A manually operated valve is used between the paint regulator and the emitters for flushing the emitters with air and thinner.
5. The electrical control system is revised to suit the changes made.

Price, Delivered & Erected Cleveland, Ohio.....$16,925.00
Delivery: 14 weeks from receipt of order.

The above bid shall not be binding upon Binks Manufacturing Company as an offer unless and until Ford Motor Company shall indemnify Binks Manufacturing Company

and hold it free and harmless against any and all suits or causes of action which may be brought against Binks Manufacturing Co. for infringement and/or contributory infringement of Starkey et al. patent 2,685,536 by reason of manufacturing and furnishing to Ford Motor Company the devices comprising the subject matter of said bid or by use by Ford Motor Company of said devices.

Quotation

Binks Manufacturing Co.
3114-44 Carroll Avenue
Chicago 12, Ill.

Date Jan. 10, 1956

Our No. 56-25 &
56-25 Alternate

Your No. .....

Attention .....

Ford Motor Company

Page No. 3

Purchaser: It is understood and agreed that the Purchaser is to do the following, unless otherwise specified:

Assume all charges for any changes made after approved drawings are sent to Binks Manufacturing Company, according to the amount of work done on the order and the cost of the changes requested.

Furnish, install and connect all electrical equipment—such as lights, light switches, motor starters, etc. (By Binks)

Provide material and labor to connect material drains and overflows on equipment to the building waste line.

Provide and run specified water supply lines to the equipment and make final connections to the equipment and to the external water seals of the pumps.

Clear and prepare the site for erection.

Unload the equipment from trucks or cars. (By Binks)

Provide safe storage space, if necessary, and deliver to the site of erection as required by the erecting crew.

Furnish the necessary material, labor, tools and equipment to cut, repair and flash all necessary holes in floors, walls, ceilings, roofs and windows for the proper installation of the equipment.

Provide, install and connect sprinkler heads as required. (By Binks)

Furnish and install all compressed air lines as required, for operation of the spray painting equipment.

Provide foundations, masonry work, grouting, supports, builders' and joiners' work, and all excavations, according to detailed drawings presented by the Binks Manufacturing Company.

Assume all Local, State and Federal taxes of any kind or character in connection with the purchase of the above.

Guarantee: The equipment manufactured by us is guaranteed to be free from all latent defects in material and workmanship disclosed under normal use and service, and should any part thereof be found, within one year from date of shipment, to be so defective at the time furnished, we will repair said part. This guarantee shall not apply to any of our apparatus which shall have been repaired or altered outside of our factory in any way, so as in our judgment, to affect its stability, nor which has been subjected to misuse, negligence or accident. Our responsibility, however, is expressly limited to the material furnished by us, and we are not liable for any damages to building, contents, products or persons.

Quotation

Binks Manufacturing Co.
3114-44 Carroll Avenue
Chicago 12, Ill.

Date Jan. 10, 1956
Our No. 56-25 &
56-25 Alternate
Your No. .....
Attention .....

Ford Motor Co pany

Page No. 4

In the case of standard apparatus furnished but not manufactured by us such as Motors, Ovens, Heaters, Controls, etc., we extend to you the same guarantee as is given by their respective manufacturers.

Shipment: All dates fixed for shipment, delivery and installation as set forth herein, are made in good faith and we will use all reasonable diligence to insure adherence to these promises, but we shall not be liable for damage due to delays.

If this quotation is based on a delivered and erected price, the erection is quoted on the basis of installing this equipment during regular working hours of the regular 40 hour work week. Work outside of this period will be performed on a written order from the Purchaser. Charges will only be made for the overtime labor allowance paid above the regular hour rates.

Costs of erection included herewith contemplate the completion of work by others (wiring, drains, steam piping, etc.), in time to allow Binks' supervisor to test and inspect equipment before leaving the job. If it becomes necessary for the Binks' supervisor to return to the job for the purpose of starting the job same will be done at the regular rate of $50.00 per day plus transportation to and from the job.

We shall not be liable for any loss or damage resulting from delay in shipment due to Fires, Floods, Strikes, Riots, Thefts, Accidents, or any other causes beyond our reasonable control.

Purchaser is to provide electric service and make necessary electrical connections required at the time of erection for lighting, welding machines, electric drills, etc.

Where state laws or municipal ordinances require permits to install equipment covered by this quotation, it is understood the purchaser assumes the responsibility for securing such approval and is to pay for any and all fees in connection therewith.

Terms: With Erection:

Partial shipments of an order will be made as material becomes available and the material included in such partial shipments will be invoiced as shipped. Payment of 75% of each invoice will become due 30 days after date of delivery of partial shipments to the job, and the remainder of such invoice will become payable to the extent of 15% thereof on completion of the work and the balance upon approval thereof.

Terms: Without Erection:

Net 30 days after date of Invoice. Partial shipments of an order may be made as material becomes available and the material included in such partial shipments will be invoiced when shipped. Payment therefor will become due thirty days from date of invoice.

Date 1/10/56 Terms As above Total F.O.B. As indicated

Binks Manufacturing Co.
Approved by Burke B. Roche,
President.

Accepted:

.....

.....

Date.....

Ford Motor Company

Equipment Specification No. 115-EF-1150
P. N. No. ..... P. O. No. .....
P. I. R. 94556

Subject Electrostatic Paint Booth and Equipment for Exhaust Manifolds EDC-9428-29-30-31

Plant Cleveland Engine Plant No. 1

Included Dwg's. 115-ZE-64, 70-ZE-1060, 70-ZE-1061, 49-ZE-18, 70-ZE-1062 and 56-ZU-2, Sh. #9.

Approvals		Date 10-3-55
R. Welston	10-14-55	
D. M. Ryan	10-6-55	
R. S. Demasser	10-6-55	
J. R. Lanyon	10-6-55	

Revisions

Dwg. No.	Sheet No.	Location	Date	Remarks

W. C. Kryska, *Supervisor*
Plant Layout, Equipment and
Material Handling Section
Engine Manufacturing Engineering
Engine and Foundry Division

Instructions to Bidders.

A. Proposals will be received by the Ford Motor Company, Facilities and General Supplies Purchasing, Administration Building, Dearborn, Michigan.

B. Proposals will be itemized, detailed and integrated to cover all component equipment, accessories and trades

necessary to complete (1) single paint spray booth as specified hereinafter.

C. Proposals shall be submitted in quintuplicate (one original and four copies) on bidder's letterhead and stationery, and enclosed in an opaque envelope plainly marked "Proposal for Electrostatic Paint Booth for Cleveland Engine Plant #1," delivered to the aforementioned address on or before the time set for termination of the bidding.

D. Should any bidder find any discrepancies in the specification, or should he be in doubt as to their meaning, he shall at once notify Purchasing Engineering Department, who will clarify the matter in question by letter. Oral instruction is not binding until confirmed by letter or revision to specification.

E. In the event some product, process, finish or other requirement is specified, but is improcurable at the time of preparing proposal, the bidder shall base his proposal upon procurable substitutes, and shall describe such substitutions in a letter accompanying his proposal.

F. If the bidder feels he is not capable of bidding the equipment as specified, he may submit proposals on equivalent equipment, providing his proposal shall satisfy the production requirements as they are specified, or should the bidder be capable of proposing more than one type of equipment, he may do so, providing the proposals are enclosed in separate envelopes, and each proposal is complete unto itself.

G. Immediately after contract is awarded the successful contractor shall contact the Ford Motor Company, Manufacturing Engineering Department Equipment Section, Engine and Foundry Division regarding details of time schedule and working procedure. Contractor shall then prepare a Progress Schedule for his work, giving the starting and completion date for the various items of work included in this contract. Contractor shall submit this

schedule to Ford Motor Company Purchasing Department for approval.

H. The contractor shall be responsible for design and proper functioning of the installation and shall immediately make any adjustments or corrections of defect found necessary.

J. The bidder shall be held to have examined the premises and site, and to have satisfied himself as to the condition of the premises before the delivery of his proposal.

K. It is to be understood that the work hereinafter described shall be complete in every detail, even though every item necessarily involved is not particularly mentioned. The bidder shall be required to provide all labor, materials and supervision necessary for the entire completion of the work intended to be described, and shall not avail himself of any manifestly unintentioned error or omission, should such exist, unless he shall explicitly state that which he intends to provide at the time he submits his proposal.

L. No work shall be done or equipment obtained until (1) set of prints bearing approval of Ford Motor Company, Manufacturing Engineering Department, Equipment Section, Engine and Foundry Division is received by contractor. Where errors or omissions are discovered later, they will be immediately corrected by contractor.

M. Spray booth designated in this specification shall be designed and fabricated as per Ford Industrial Equipment Standards BAX, Sections 3, 4, 6, 8, 10, 11 and 18. All work shall be complete including the installation and exhaust system. All state and local codes and underwriters regulations shall be complied with in relation to the fabrication and installation of the booth.

N. The unloading of material and equipment and the moving of same to the job site shall be the responsibility of the vendor and shall be quoted as a separate item.

P. The Ford Motor Company will not be liable for the safekeeping of any equipment or supplies other than its own.

Q. The successful bidder will be furnished reference part prints and sample parts as required.

Electrostatic Paint Booth and Equipment for Exhaust Manifolds.

1. Purpose:

The purpose of this paint booth is to enclose the area in which manifolds are being painted while traveling on an overhead monorail conveyor. Paint to be used is M-1713-A air-dry enamel.

2. Product:

The products to be painted are EDC-9428-29-30-31 Ford Manifolds. Total production is 375/hr @ 80% efficiency.

3. Type:

3.1 This booth shall be of the dry type, closed, manless, with side exhaust.

3.2 The manifolds will be carried (two per hook) on swivel hooks incorporating a sprocket which will engage a length of silent chain (supported as a rack) within the booth. The hooks will be spaced at two-foot centers and will travel approximately 15 ft/min. The section of conveyor rail extending throughout the booth shall be amply supported and shielded as shown on Drawing 115-ZE-64.

4 Construction:

4.1 The booth should be constructed as an enclosed platform with #18 ga. (min.) side panels. Due to the

affinity of static electricity to sharp points and surfaces, special attention should be given to the elimination of such interferences within the area of the paint distributers (56-ZU-2, sheet #9).

4.2 The platform (of steel construction) is for the purpose of supporting the electrostatic equipment and to provide accessability to the damper and exhauster.

5. Lighting:

The lighting shall be of the type specified and shall be focused as shown on 115-ZE-64, sheet #1.

6. Safety:

Ford Motor Company has submitted this design to F. I. A. for their approval. However, the successful bidder is responsible for obtaining permits and approval for the construction, installation and operation of this booth. The O. S. and Y valves, in the sprinkler system, should be located at a minimum of (15) feet beyond the booth.

7. Cleanouts:

All tanks and enclosed compartments and ducts shall be provided with cleanout doors, located in convenient and accessible places.

8. Successful bidder to Furnish:

8.1 Booth enclosure, platform, ladder and railing.

8.2 All ductwork, including stacks to extend 10 feet above highest point of building roof.

8.3 All required sprinkler heads and piping from existing mains.

8.4 Wiring to existing power supply.

8.5 Non-sparking axial fan complete with motor and drive.

8.6 4-I-7.7 monorail through booth complete with supporting structure.

8.7 Paint delivery and distribution equipment (including 56-ZU-2), piping and controls.

8.8 Electrostatic equipment, mounting, insulation and controls.

8.9 Flushing equipment, piping and controls.

8.10 Pneumatic piping and controls.

8.11 Centralized control panel for electrical and plumbing equipment mounted flush (or nearly flush) at the location shown.

8.12 Unloading and moving of material to job site.

8.13 Complete erection, paint, operation and inspection.

9. Ford Motor Company to Furnish:

9.1 Plant Layout print for location.

9.2 Drain deck and drain (if required).

9.3 Hole in roof and roof framing for exhaust system.

9.4 Utilities:

Water—45 P.S.I.
Electric—440 Volt, 3 Phase, 60 Cycle.
Air—80 P.S.I.

9.5 Conveyor chain, trollies, hooks and exterior monorail.

10. Electrical:

All motors shall conform to Ford Motor Company J. I. C. Standards. Shall be approved by Ford Motor Company.

All electrical, pneumatic and hydraulic equipment and installation thereof by the vendor shall conform to Ford Motor Company J. I. C. Standards.

Successful bidder shall furnish a complete stock list of controls proposed for subject equipment. Ford Motor Company to approve, request changes and/or reserve the right to furnish any or all of the controls.

No fabrication or ordering of material shall be made until approval of preliminary drawings by Ford Motor Company.

Note: Latest revision of Ford Motor Company J. I. C. Standards.

11. Drawings:

Three sets of preliminary prints shall be furnished by the vendor as soon as possible after having received the order. These prints shall give a complete engineering breakdown. One set will be returned to the vendor with preliminary and general arrangement approval by Ford Motor Company. The tracings shall be changed or corrected, if necessary, and five (5) sets of finalized prints shall be furnished for final approval.

12. Delivery:

Outside contractor shall set forth in his proposal the earliest date, after receipt of order, upon which erection can be completed.

PLAINTIFF'S EXHIBIT VVVVV-1.

427

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF INDIANA
INDIANAPOLIS DIVISION

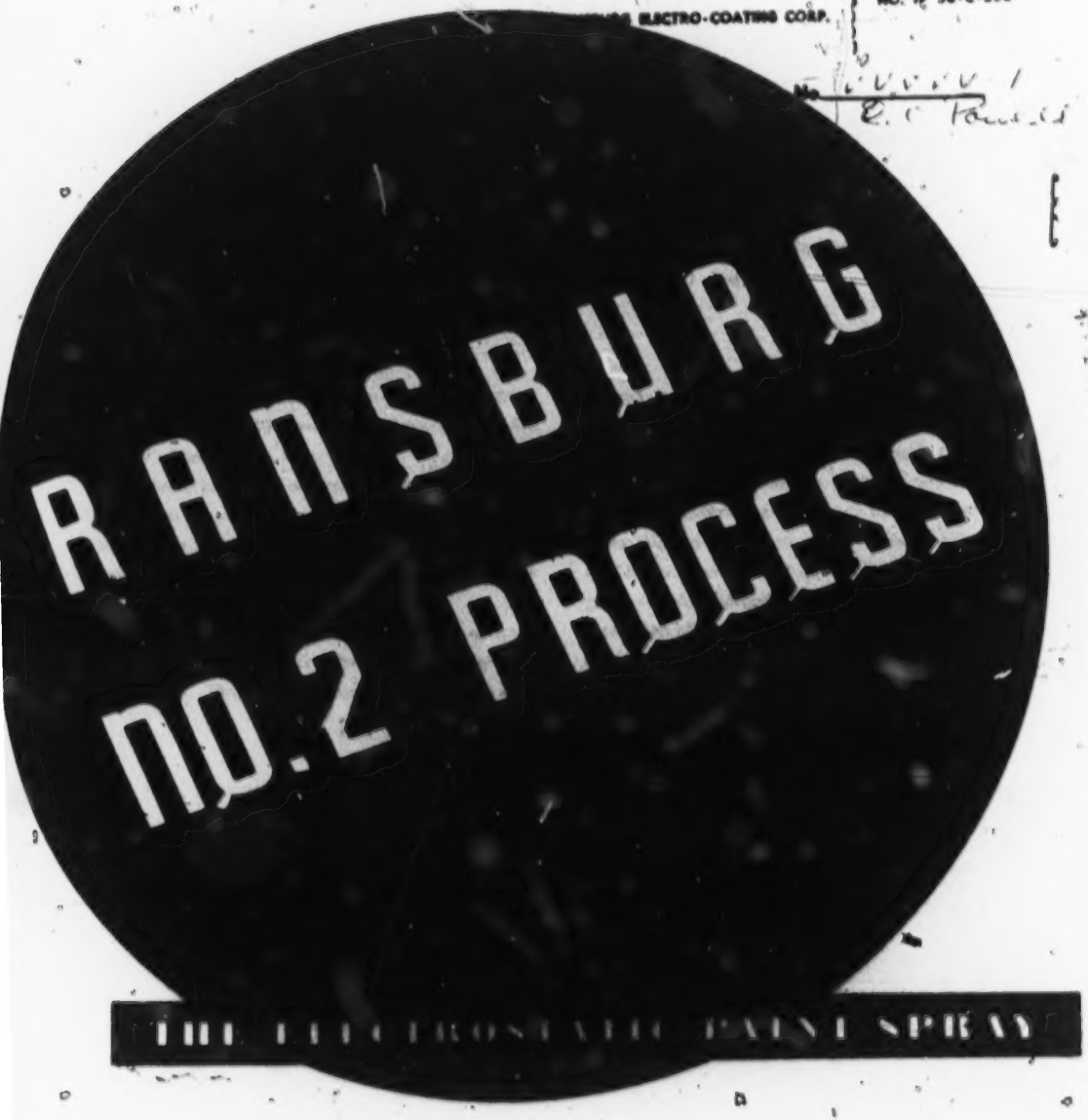
BINKS MANUFACTURING CO.

V.

ELECTRO-COATING CORP.

CIVIL ACTION
NO. IP 56-C-252

No. VVVVV-1



Rejected as prior art
Ex 34-A

WHAT and HOW

Electrostatic spray painting, originated and applied by Ransburg, has been used by industry for years. Hundreds of these units are operating on factory production lines in this country and abroad, saving millions of dollars annually by more efficient use of paint and labor.

The Ransburg No. 2 Process is the *only* spray method capable of almost 100% painting efficiency on a wide variety of production jobs.

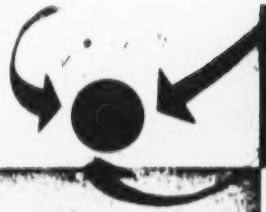
The basic process is shown in the diagram below. Articles to be painted are carried by a conveyor into the coating zone. They are grounded electrically by their hangers and, depending upon their shape, may be rotated.

A voltage pack is connected to a paint sprayer, creating an electrostatic field between it and the moving articles. The paint sprayer shown has a bell-shaped atomizer, and several other styles are available, depending upon the job requirements.

A pump unit supplies paint through the hollow drive shaft of the atomizer, and rotation feeds the paint at a uniform rate through the atomizer to its outer edge. Atomization occurs under the influence of the electrostatic field, producing a spray pattern of electrically charged particles, while the irresistible attraction of the field pulls the spray to the moving articles—and all of the spray is deposited.

RANSBURG

© 1953
RANSBURG ELECTRO-COATING CORP.
INDIANAPOLIS, INDIANA



No. 2

TYPE OF ARTICLE	Almost any metal article, and many non-metallic articles, can be coated by the No. 2 Process. Although ideally suited for coverage of exterior surfaces, this process can coat many recessed areas.
TYPE OF COATING	Most coating materials can be applied. Lacquers, varnishes, and synthetic enamels, whether electrically-conducting or not, can be handled satisfactorily. "Special" materials are seldom needed.
PRODUCTION RATE	Any reasonable production rate can be met by the No. 2 Process. Conveyorized handling of the work is a prerequisite.
TYPE OF CONVEYOR	Monorail, spindle, cross-bar or belt conveyors can be used.
POWER REQUIRED	Average power required is 2 kw, from a 220 or 440 volt, 60 cycle supply.
VENTILATION REQUIRED	Only a relatively small air movement for removal of solvent vapor is required. Conventional type spray booths are not necessary since there is no overspray paint to be exhausted.
MAINTENANCE	Clean-up and maintenance care is substantially less than other spray methods.
EQUIPMENT	When desired, Ransburg will supply the complete automatic coating unit, consisting of electrostatic voltage source, electrical controls, insulators, atomizers, and coating material supply system. The user furnishes only the conveyor, workholders and solvent ventilation.

EXHIBIT D-21.

Adopted July, 1956.

Ransburg.

No.....

Electrostatic Spray Process Agreement.

User: .....

Plant: ..... Units: ..... Drawing No. .....

Items: .....

Ransburg Electro-Coating Corp., of Indianapolis, Indiana (herein called Ransburg), which owns patents and inventions for electrostatically depositing liquid spray particles atomized by compressed air, herein called "the Process," has done and is doing extensive engineering and research on the Process, and has designed special equipment therefor; and the above User, which desires to use the Process, engineering and equipment, agrees that:

1. License.

During the term and subject to the provisions hereof, Ransburg grants User a non-exclusive license to use the Process at User's plant, with the number of units, in accordance with Ransburg's drawing made a part hereof (subject to such changes in equipment, procedure, and specifications as Ransburg may from time to time designate) for coating the items, all as set forth above.

2. Equipment and Supervision.

At the time requested by User, Ransburg will ship prepaid to the above plant, for the use of the Process, high voltage and electrical control equipment, and will furnish expert supervision for installing and placing it in operation. If Ransburg's supervisor is required to make more than one trip to User's plant or is there

delayed for any reason not chargeable to Ransburg, User will pay Ransburg $75.00 for each day of such extra trip or delay, plus transportation expenses incurred. User shall furnish all other labor, materials and equipment for the installation and use of the Process.

Ransburg will furnish replacements for any defective part of its equipment at the expense of (1) Ransburg, if the part becomes defective through ordinary wear and tear from proper use and if it is returned prepaid within 30 days after becoming defective, or (2) User, at Ransburg's applicable standard replacement charge, if it becomes defective through improper use or negligence of User, or is not returned within said 30 day period.

Ransburg's obligation to furnish equipment, supervision and replacement parts is subject to availability of the equipment and parts, to prior commitments, fires, strikes, acts of God, governmental decrees or actions, and any other causes beyond Ransburg's control, postponing or preventing performance.

3. Fees.

User will pay Ransburg at Indianapolis, Indiana: (1) An initial fees of $.....sixty days after shipment of Ransburg's equipment to User, or 30 days after its installation, whichever period expires earlier; and (2) For each calendar month during the term hereof, commencing upon completion of installation of the equipment or on the thirtieth day following shipment thereof, whichever occurs earlier, a monthly fee comprising: a basic monthly fee of $100.00, payable in any event, but prorated for any partial initial calendar month; and an additional monthly fee based on the cost to User of the coating material (including all its ingredients) used in said unit(s) during said month according to the following schedule:

Monthly Cost of Coating Material	Monthly Fee
Less than $4,000.00	10% of Cost
$4,000 to $8,000	$400.00 plus 5% of Cost over $4,000.00
In Excess of $8,000.00	$600.00

At the request of either party the basic monthly fee from time to time shall be adjusted commensurate with changes of not less than ten points from the value for January, 1956 of the Consumer Price Index, Large Cities Combined, All items, of the Bureau of Labor Statistics of the U. S. Department of Labor, on the 1947-1949 base, or any successor thereto.

User will keep and make available for Ransburg's inspection during business hours permanent records of all information required for computing monthly fees. Within 10 days following each calendar month User will furnish to Ransburg a written report containing all information for computing the fee for that month, with User's computation and payment of the fee.

If shipment of the equipment is requested by User more than one year after Ransburg's acceptance of this agreement, Ransburg shall have the right to change the fees and terms of this agreement in conformity with its policy at that time.

4. Title and Use of Equipment.

All equipment furnished by Ransburg shall remain its personal property and in User's possession until returned to Ransburg as herein provided. User will pay Ransburg for any loss of, or damage to, Ransburg's equipment while in the possession of User or its agents and upon termination of this agreement will at its expense promptly deliver the equipment, freight prepaid, to Ransburg at Indianapolis, Indiana, in as good condition as when received, except only for ordinary wear and tear from proper use.

User will pay, or reimburse Ransburg for, any taxes or fees imposed by any governmental authority by reason of the installation, possession, use, or location of any equipment or services furnished by Ransburg hereunder.

User will use the equipment and the Process in accordance with Ransburg's safety and operating recom-

mendations, and will not make any use thereof except as herein provided. Ransburg shall have the right to enter User's premises during business hours to inspect the condition and use of the equipment.

5. Patent Infringement.

Ransburg indemnifies User to the extent of the fees paid under 3 above against liability for patent infringement by the Process if used as provided herein. Ransburg will defend at its expense any suit brought against User for such infringement, provided User promptly notifies Ransburg of any claim of infringement, permits Ransburg to assume its defense, and cooperates with Ransburg as to such defense and as to any changes in equipment or use thereof.

6. Liability.

Ransburg shall not be liable to User (except as provided in 5 above) for damages resulting from the installation, servicing, presence, use, or condition of Ransburg's equipment of User's plant. User indemnifies Ransburg against all claims of others for any damages resulting from the installation, servicing, presence, use, or condition of Ransburg's equipment at User's plant, provided User shall not be liable for any damages Ransburg may sustain because of Ransburg's obligations under 5 above. Ransburg makes no warranty, express or implied, relative to the Process or equipment.

7. Term.

This agreement shall be in effect from the date of acceptance by Ransburg until terminated as follows: (1) User may terminate as of the end of any calendar month or as of the date of return of Ransburg's equipment, whichever is later, upon 30 days' written notice to Ransburg; (2) Ransburg may terminate as of any date after three years from the acceptance date hereof, upon six months' written notice to User; or (3) Ransburg may terminate forthwith should User become

insolvent or bankrupt or should any breach or default by User remain uncurred for 20 days after written notice thereof from Ransburg, and in any such case Ransburg may enter User's premises and repossess its equipment without it or its authorized representatives incurring any liability for trespass or other causes and without prejudice to its rights to recover amounts owing it hereunder or damages for breach of this agreement.

This written agreement constitutes the entire agreement between the parties, and no terms or understandings not herein contained (whether included in any purchase order or otherwise) shall be valid or binding unless contained in a writing signed by both parties. This agreement shall be governed by the law of Indiana.

Signed by User on ....., 195....

..... (User)

By .....

(Title)

Accepted by Ransburg on ....., 195....

Ransburg Electro-Coating Corp.

By .....

(Title)

TRANSCRIPT OF PROCEEDINGS.

Introductory Remarks by Mr. Hume.

* * * * * *

In the counterclaim, the defendant asserts that the plaintiff has infringed its method patent No. 2685536, issued on August 3, 1954, for a method for electrostatically coating articles.

It asserts that claims 1 to 6 inclusive, 8, 10 and 11 are infringed, and for the purpose of this trial, your Honor, the defendant designates claims 1, 2 and 10 as being typical which will be referred to here in the course of the proofs adduced at the trial.

The defendant further asserts that its Patent No. 2794417, issued on June 4, 1957 for apparatus for electrostatically coating articles is infringed. Here only claim 4 is involved. There are no issues of title here before the Court in this trial. That has been stipulated and there is no issues raised by either side with respect to the jurisdiction of the Court over the subject matter or over the parties in the case.

* * * * * *

TESTIMONY OF EMERY P. MILLER.

Direct Examination by Mr. Hume.

* * * * * *

Q. (By Mr. Hume.) Now, what conveyor movement rates were employed when you first adapted the No. 2 system for commercial uses as compared to the conveyor rates of the No. 1 system as represented in Exhibit 7, and when I have said No. 1 system in the last series of questions I have referred to the type represented in Exhibit No. 7.

A. Conveyor speeds would be generally the same order of magnitude.

Q. Do they—strike that, please.

Would the utilization of these features that I have just questioned you about on the basis of those adapted, or adopted, earlier to the No. 1 system as represented in Exhibit 7 affect the operativeness of the No. 2 system?

A. No, they would not, sir.

* * * * * *

TESTIMONY OF WILLIAM J. STELLMAN.

* * * * * *

Cross-Examination by Mr. Meroni.

* * * * * *

Q. Well, I call your attention to Column 3, Lines 41, 42, 43, and 44 of Patent Defendant's Exhibit 4.

A. I am referring now to my copy of amendment C which I show, I believe, the change which you just quoted.

Q. You know that change appears in the patent at the point I have designated here as Column 3 beginning around Line 40. And you are free to look at the file history, sir.

The Court: Exhibit 6.

Q. 6.

A. I believe the sentence beginning on Line 41, Column 3 of the Patent Exhibit 4 was added by the amendment C which was filed, if I remember, on August 21, 1956.

Q. I believe there is an admission in this case that that is the first time that language like that ever appeared in that case. Do you disagree with that?

A. No, I don't disagree with that.

Q. Whose idea or brainstorm was it to put in that thought in that case?

A. That arose at my interview with Mr. Mitchell on July 26, 1956, I believe.

Q. Well, without getting into any hearsay, you say that the first time it came up was—

A. (Interposing.) July 24th.

Q. (Continuing.) —at the time of your interview with Mr. Mitchell, is that right, sir?

A. That is correct. The date of that interview was July 24th.

Q. July 24th?

A. Yes.

Q. Did the client ever suggest that language to you?

A. No, that arose at the interview, as I said, with Mr. Mitchell.

Q. Well, how, then, could you ascertain that the needles were sufficiently close together to cause the coated material to bridge the spaces without consulting the client? How did you know that would happen?

A. I think it is obvious from the drawings.

Q. Will you point out in the patent itself any language describing what is in the drawings that says that the needles are sufficiently close together so as to cause the coating material to bridge the spaces therebetween other than this language that you put in there by the amendment?

A. I don't recall word for word everything that is in the patent, Mr. Meroni, but I do believe that the patent describes the apparatus, figures 5 and 6, being needles clamped between plates, and it appears obvious from looking at Figures 5 and 6 that the needles are practically in contact.

Mr. Meroni: I move to strike the last part of the answer as what is obvious, that is perfectly obvious.

The Court: Will you read the question?

(The last preceding question was read by the Reporter.)

The Court: The motion will be overruled.

Q. Did you know at that time how close together they had to be in order to accomplish that result?

A. No. I have never made an experiment to determine how far apart you could move them to break the bridge.

Q. Do you know as of this day even how close together they have to be in order to accomplish that result?

A. No. I can merely state if they are as close together as shown in the drawings, the result would naturally occur.

Mr. Meroni: I move to strike the last part of the answer. I asked him if he knew as of this day and then he volunteered some information that is not called for in the question.

The Court: The motion will be overruled.

* * * * *

Q. Now, in drawing up that language in this claim you said here, "including said feeding means for distributing coating material to an extended atomizing zone where it is formed into a plurality of space points from which atomization takes place." Did you refer to the needles there in so describing those points?

A. Well, my understanding of that language, at least my intent, was that it, that the description in the claim of the points from which atomization takes place is referring to location.

Q. Position of the location where atomization takes place. Well, in the actual device, figures 5 and 6, the points are the tips of the needles, are they not?

A. Not as I understand it. The points, the needles have points, obviously. The needles are covered with coating material. The point from which atomization takes place would be attained about the points of the needles but, of

course, would be separated, then, by the thickness of the coating material.

Q. But those points would also be fixed by the needle points, would they not?

A. The points from which atomization takes place?

Q. Yes.

A. Yes, I believe they would be.

* * * * *

TESTIMONY OF EDWIN M. RANSBURG.

Direct Examination by Mr. William.

* * * * *

Q. Mr. Ransburg, will you please refer to Plaintiff's Exhibit XXXX which has been received in evidence in this case, and state whether or not you were familiar with the fact and were aware of the fact that that letter to AVCO Manufacturing Company, dated January 18, 1954, was mailed to that company by the defendant at about that date?

A. It was.

Q. On whose authorization?

A. I authorized it.

Q. And with particular reference to the last page of Exhibit XXXX, which bears the designation "Exhibit B," and which lists the numbers of two patents and the numbers of three patent applications, will you state what the occasion was for preparing Exhibit B and attaching it to that letter?

A. It is our understanding this was at Mr. Redfield's of Crosley's request that they be listed.

Q. What was Mr. Redfield's connection with the Crosley Division of AVCO Manufacturing Corporation?

A. I think he was chief patent counsel.

Q. And will you refer now to the last paragraph of this letter which is Plaintiff's Exhibit XXXX which starts with the words "the first whereas clause is rewritten as follows:"? Now, that whereas clause refers to what? In other words, where does that appear or where did it appear at the time this letter was written?

A. What do you mean "where did it appear?"

Q. Was it a part of any agreement or agreement form with Crosley?

A. Well, it would be the first whereas clause in the printed form of the agreement for electrospray, the No. 2 process.

Q. This first paragraph of Plaintiff's Exhibit XXXX was a modification of that whereas clause, then, was it?

A. Yes.

Q. What was the origin of the whereas clause which is quoted in the first paragraph of Plaintiff's Exhibit, Exhibit XXXX?

A. The basic whereas clause was out of the printed contract and was completely modified but inadvertently modified not as much as it should have been.

Q. When was it first brought to your attention that the whereas clause that is set forth in the first paragraph of Plaintiff's Exhibit XXXX recited in substance that the patent numbers of the application numbers listed in Exhibit B applied to methods and apparatus used in electrostatically depositing liquid spray particles formed by airless atomization?

Mr. Meroni: Objected to as leading. There is nothing in this record to indicate it was ever brought to his attention.

Mr. Gilliom: I will withdraw the question, then.

Q. (By Mr. Gilliom.) Was it ever brought to your attention, Mr. Ransburg, subsequent to the writing and mailing of Plaintiff's Exhibit XXXX, that the whereas

clause contained in the first paragraph of that exhibit stated in substance that the patent numbers of the application numbers listed in Exhibit B applied to methods and apparatus used in electrostatically depositing liquid spray particles formed by airless atomization?

A. It was brought to my attention.

Q. When was it first brought to your attention?

A. During discovery proceedings in this case.

Q. In this proceeding in which you are now testifying?

A. Yes.

(The defendant, for purposes of identification, handed the Reporter a certain document for marking and which was by said Reporter marked Defendant's Exhibit 41 in three pages.)

Q. (By Mr. Gilliom.) After you learned of the reference in the whereas clause to which I have referred in the previous question, did you give instructions to anyone in your organization to communicate further with AVCO Manufacturing Corporation on that subject?

A. I did.

Q. Will you please examine what has been designated as Defendant's Exhibit 41 and state briefly for the purposes of identification what that is?

* * * * *

A. These are copies of two letters by us to AVCO and one letter from them to us.

* * * * *

PLAINTIFF'S EXHIBIT KKKK.

DEPOSITION OF EDWIN K. RANSBURG.

* * * * * *

Q. Now, referring to your Sfarkey, et al. Patent No. 2685536 in suit, a copy of which is before you as Exhibit A * * *

A. (Interposing.) Yes.

* * * * * *

PLAINTIFF'S EXHIBIT LLLLL.

DEPOSITION OF BURKE B. ROCHE.

Direct Exdmination by Mr. Hume.

* * * * * *

Q. Now, Mr. Roche, you have read from form 439 from Exhibit D to the complaint which does provide for a set of conditions involving the supplying of equipment, but didn't you recognize that that was an alternative form that could be selected by a prospective licensee and it stood as an alternative to the form Exhibit C, namely 440, that is, Exhibit C to the complaint, in which the alternative form of license was afforded, in which no equipment was to be provided? Didn't you recognize that?

A. Well, this Exhibit C just mentions the terms and it doesn't refer, as I recall here, it doesn't refer to equipment. It just mentions something about the fees and then that there would be periodic fees, depending upon the amount of coating used and it also says there will be an initial fee also, but it doesn't specifically refer to the equipment but what Ransburg does, from what I have always heard from all of the people that work for Binks and other people that I have talked to, that usually involves the leasing of equipment.

Q. Is it possible that you have authorized the bringing of this complaint on a mistake of the understanding of the facts?

A. No, it is not possible. The license that was offered us by Mr. Edwin Ransburg was not acceptable to us.

Q. Now why wasn't it acceptable to you anyway?

A. Because we are in the business of manufacturing and selling equipment. When we sell equipment, the title passes, and we are not interested in getting into any sort of an arrangement where we have to tie our customers up with continuous royalty payments or these periodic payments that go on for years.

We don't conduct our business that way. We never have, and it is a very cumbersome process, to such an extent that the Ransburg Company, by operating in this way, has managed to get a monopoly on the electrostatic coating business so far as the airless method is concerned.

They are preventing us from using our method and the way we used to conduct our business. The last letter we received from Mr. Edwin Ransburg was entirely unacceptable to us.

We are not interested in continuous royalty payments.

Q. How could Binks be hurt through the sale of its equipment to purchasers who would be licensees of Ransburg, licensees of Ransburg without the requirement of obtaining equipment from Ransburg?

A. How would Binks be hurt?

Q. Yes.

A. Well, I don't think that it would certainly be to our advantage to have to be licensed, to have our customers licensed by Ransburg under those existing arrangements that we would have to adhere to. As a matter of business policy, we don't want to do our business that way.

PLAINTIFF'S EXHIBIT NNNN.

DEPOSITION OF MILTON F. PLEVA.

Q. Would you say that in the majority of instances, if not in all of them, the customer has not been shown enough interest to ask what patents covered the equipment?

A. I would think that is a reasonably true statement, yes.

Q. In other words, they wanted the equipment so bad that they didn't care what the license agreement provided in the way of patents, is that right?

A. Well, of course, you are asking me now for an opinion. I don't know what the man feels, but I would say this, that I think the result is about what you have outlined because normally the man that is down there is not an attorney and not interested in those things.

Normally, he is a production man, he sees here a tool that he thinks he wants to use on his line, and I don't think the average man that comes down there, as a rule, has asked us all about our patents.

I think that in the average situation the man feels he knows there is an agreement involved and that if he's interested and wants to talk about that we certainly will go all through that with him in detail. I think the average guy, the production man, would probably say, "Well, when this comes into our factory we will turn this over to the legal department—we pay those guys—and let them look at it."

Q. But you have made it plain to these people that if they want the equipment they've got to take the license?

A. Oh, yes, sir.

Q. That they can't get the equipment without the license?

A. Yes, that's right, that's right.

• • • • •

PLAINTIFF'S EXHIBIT OOOO.

• • • • •

WILLIAM A. DARRAH, called as a witness in behalf of the plaintiff herein, having been first duly sworn, was examined and testified as follows:

• • • • •

Cross-Examination by Mr. Hume.

By Mr. Hume: Q. Do you recall, Mr. Darrah, whether or not you stated to the Patent Office in connection with the De Vars patent to which I have directed your attention the following:

> "Applicant has therefore modified claims which have been rejected on De Vars by bringing out the feature of the surrounding insulation. This factor makes the difference between an operative and inoperative device as far as producing the results obtained by the applicant is concerned."

Do you have any recollection of making a statement of that kind?

A. I have prosecuted over a hundred patents and I can't go back thirty years and tell you about that one.

• • • • •

PLAINTIFF'S EXHIBIT ZZ-1.

Serial No. 3448

3-21-49

Ransburg Atom Spray Process Agreement.

This Agreement, entered into this 21st day of March, 1949, by and between Ransburg Electro-Coating Corp., an Indiana corporation, having its principal place of business at Indianapolis, Indiana, hereinafter called "Ransburg", and Enameled Steel & Sign Company, Chicago, Illinois hereinafter called "User", Witnesseth That:

Whereas, Ransburg is the owner of, or otherwise has the right to grant licenses under, certain inventions, letters patent of the United States or applications for such letters patent pertaining to and covering methods and apparatus used in electrostatic atomization and electrostatic deposition of liquid coating material, the process so used being referred to as the Atom Spray Process, has acquired much engineering data and experience pertaining to said Process, has designed special equipment therefor and is conducting research in that field; and

Whereas, User desires to use said Process and in so doing to avail itself of the experience gained by Ransburg in this field.

Now, therefore, it is mutually agreed as follows:

1. License: In consideration of the payment by User of the fees herein provided, Ransburg hereby grants to User, subject to and in accordance with all of the terms and conditions of this Agreement and while the same is in effect, the right to use said Atom Spray Process in the deposition of liquid coating with the Equipment furnished by Ransburg herein below described, with one Unit, as

shown in Ransburg's Drawing No. 132127 subject to such changes therein and such further specifications as Ransburg may prescribe, for electrostatically spraying acoustical pans but said right shall not include the use of said Process in the manufacture of abrasive articles, flock-coated articles or articles coated with fiber-shaped particles.

2. Equipment: Ransburg will furnish User two voltage packs and electrical controls, an atom spray device and insulating support therefor and high voltage lead-in means, which will be shipped prepaid to User's plant at Chicago, Illinois, upon request of User. Ransburg will supply replacements, without charge, of any defective parts of said two voltage packs, electrical controls and high voltage lead-in means, except where the defect results from improper use or operation, or negligence of User, and provided User returns such defective parts to Ransburg within thirty days after they become defective. User shall furnish all labor, materials and equipment necessary for the use of said Process except the Equipment to be furnished by Ransburg in accordance with this paragraph.

3. Supervision: Ransburg will furnish supervision necessary to placing said Equipment in readiness for operation. Should Ransburg's supervisor make more than one trip to the plant of User or be delayed there for any cause not chargeable to Ransburg, then for each day of such trip or trips or such delay, User shall pay Ransburg Seventy-Five Dollars and any necessary transportation expense incurred thereby.

4. Conversion: Ransburg will grant, upon written request by User, the right to use said Process other than as described in Paragraph 1 unless requested use involves unsafe practices or impractical conditions in Ransburg's opinion or is in conflict with the policies or commitments

of Ransburg. Such grant will be valid only when written and signed by Ransburg.

5. Liability: User agrees that Ransburg shall not be liable to User for any claim resulting from the use, operation or condition of the Equipment furnished by Ransburg. User further agrees to reimburse Ransburg for any loss which may be sustained as a result of any liability to third parties for any claim resulting from the use, operation or condition of the Equipment furnished by Ransburg, while said Equipment is in the possession or custody of User.

6. Use of Equipment: User agrees to follow Ransburg's safety recommendations, and to maintain said Equipment in as good repair as when installed, ordinary wear and tear from proper use and operation alone excepted. User agrees that it shall not use or operate said Equipment with any of the parts or safety devices removed, and to reimburse Ransburg for loss of or damage to said Equipment while in User's possession or custody.

7. Title: Title to said Equipment shall at all times remain in Ransburg and said Equipment shall remain personal property regardless of how it is affixed to the realty. Ransburg shall have at all times, during business hours, the right to enter User's premises for the purpose of determining whether said Equipment and said Process are being used as herein provided. User shall not have the right to (1) lease or grant the right to use said Equipment to any person, firm or corporation, (2) remove it from the plant to which it is delivered for installation or (3) use it for any purpose or in any manner other than as herein provided. Upon termination of this Agreement, User agrees to deliver said Equipment, freight prepaid to Indianapolis, Indiana, to Ransburg in as good condition as when installed, ordinary wear and tear incident to its proper use and operation alone excepted.

8. Performance: The performance of Ransburg's obli-

gations hereunder is, subject to strikes and lockouts, whether in Ransburg's organization or elsewhere, and to accidents, fire, delays in manufacture or transportation, acts of God, embargoes or any Governmental action as well as any causes for postponement or non-performance over which Ransburg has no control. Any of said causes shall absolve Ransburg from all liability to User for delay or non-performance under the terms hereof.

9. Period of Agreement and Termination: Unless terminated as hereinafter provided, this Agreement shall remain in full force and effect for five years from the date thereof and shall automatically renew itself for successive five-year periods upon the same terms and conditions as those set forth herein.

Either party shall have the right to terminate this Agreement at any time upon thirty days' written notice to the other party. As a condition precedent to User's right to terminate this agreement, User shall fulfill its obligations hereunder and return said Equipment prepaid to Ransburg within thirty days after notification of such termination, in as good condition as when installed, ordinary wear and tear from proper use and operation alone excepted.

In the event User shall fail to perform any of the conditions or obligations of this Agreement, and such failure shall continue or recur after written notice thereof from Ransburg, Ransburg may (without prejudice to its rights to recover any amounts owing by User as herein provided or any damages for breach of this Agreement) terminate this Agreement and take possession of said Equipment, and for that purpose permission is hereby given Ransburg, or any of its agents, to enter any premises wherein said Equipment is located, to discover and take possession of said Equipment without notice and without being liable to any suit, action, indictment or other proceedings by User or anyone claiming under it. Any delay, concession

or indulgence on the part of Ransburg in enforcing any of its rights on any default shall not be deemed a waiver of such rights.

10. Fees: User agrees to pay to Ransburg an initial fee of Two Thousand Dollars ($2,000.00) within sixty days after date of shipment of said Equipment or thirty days after date of installation thereof, whichever occurs earlier. User further agrees to pay Ransburg, on or before the tenth day of each calendar month, during the life of this Agreement, a monthly fee of One Hundred Dollars ($100.00) plus the percentage or percentages of the cost to User of the coating material (including all its ingredients) used in said Unit during the preceding calendar month in accordance with the following schedule:

Percentage	Monthly Cost of Coating Material
10%	0 to $4,000.00
5%	$4,000.00 to $8,000.00
0	All Over $8,000.00

Monthly fees under this Agreement shall start with the date of installation of said Equipment or thirty days after date of shipment thereof from Ransburg's plant, whichever occurs earlier, and the first payment shall be made on or before the tenth day of the calendar month following. The first and last monthly fees payable under this Agreement shall be prorated according to the portion of the month for which they are payable but only to the extent of the first One Hundred Dollars ($100.00) of these fees.

In addition to the above fees, User agrees to pay, or to reimburse Ransburg if it should be obliged to pay, directly or indirectly any taxes, licenses, or fees imposed by the laws of any State, of any political subdivision, of any municipality, or of any other governmental authority by reason of the installation, possession, use or location within the state of any equipment furnished pursuant to

this Agreement. Such sums as may be due under this provision shall be paid separately or added to the invoice f · other payments as the law may require or as Ransburg may determine.

Upon request of Ransburg, User shall supply Ransburg with a written report showing the monthly quantity of coating material used in said Unit and the cost to User of said coating material. User agrees to keep permanent books of account from which the correctness of said monthly reports can be verified and agrees that such books of account shall be open to inspection by Ransburg or its duly authorized representatives at any time during User's regular business hours.

11. Technical Information: User hereby agrees to exercise reasonable precaution to treat all information relating to said Atom Spray Process or atom spray equipment as secret and confidential.

12. Assignment of Inventions: User agrees in the event that User should acquire any inventions, improvements, or letters patent, domestic or foreign, relating to electrostatic coating processes or apparatus, or products made by such processes or apparatus, from any source, User shall immediately assign and transfer the same to Ransburg.

User agrees to render to Ransburg every possible assistance in the prosecution of any applications based on such inventions, and to execute any and all documents of whatever nature or description properly required by Ransburg in the prosecution of such applications.

User shall adopt the practice of requiring its employees considered likely to make inventions relating to and/or coming within the scope of this paragraph to assign such inventions to User, to execute any and all documents of whatever nature or description required by Ransburg and User incident to obtaining patent protection for such inventions and to use their best efforts to carry out these provisions.

In the event that Ransburg does not elect to prosecute a patent application on any of the inventions submitted to Ransburg under this paragraph, User may proceed with the prosecution of a patent application for such invention, and retain all rights therein.

13. Disclosure of Techniques, Knowledge and Information: User agrees to disclose to Ransburg for Ransburg's complete understanding thereof all techniques, knowledge and information relating to the inventions or improvements referred to in Paragraph 12 herein.

14. Duration of Certain Obligations of User: User agrees that its obligations contained in Paragraphs 12 and 13 shall continue in full force and effect for a period of two (2) years after the termination of this Agreement pursuant to due notice and with or without cause.

15. Execution of Agreement: This Agreement sets forth the entire agreement and understanding between the parties as to the subject matter of this Agreement and no statements, conditions or representations, either oral or written, made by the parties, their employees or agents, including conditions or provisions appearing in any purchase order or other instrument issued by User, shall be valid or binding unless contained in a written instrument signed by both parties.

This Agreement is executed by Ransburg in quadruplicate, subject to execution by User and delivery of two executed copies thereof to Ransburg within thirty days of the date first above written; and if so executed and delivered within that time, it shall be a contract, as of said date, between the parties under the laws of the State of Indiana.

All of the rights and privileges of Ransburg hereunder shall be extended to and inure to the benefit of the successors in business or assigns of Ransburg upon User being given written notice of the assignment of this Agreement

to such successors in business or assigns and upon such successors in business or assign accepting and assuming all obligations of Ransburg hereunder in writing.

In Witness Whereof, the parties have executed this Agreement, acting herein by their respective officers duly authorized therefor.

Ransburg Electro-Coating Corp.,
By E. M. Ransburg, Vice-President,
Title

Attest:

.....

(Seal)

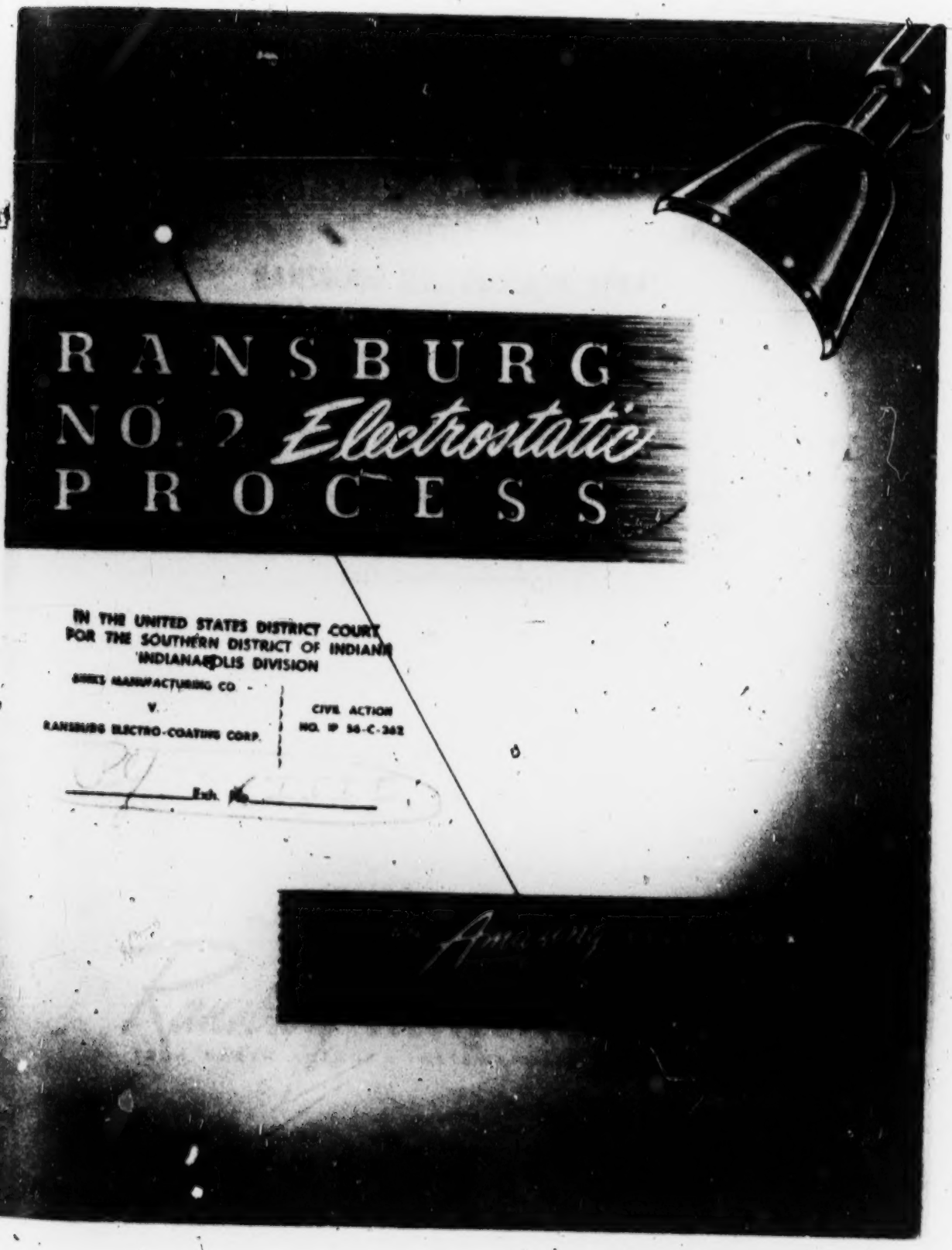
Enameled Steel & Sign Co.,
By C. Simmons, President,
User Title.

Attest:

.....

(Seal)

PLAINTIFF'S EXHIBIT IIII.

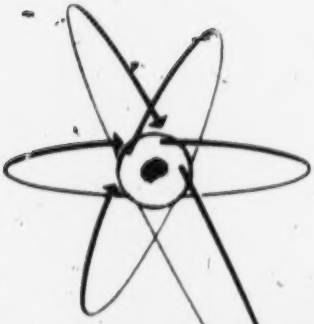


RANSBURG ELECTROSTATIC SPRAY—

using conventional automatic spray guns—is in wide use on production painting lines in factories throughout this country and abroad and is saving millions of dollars through more efficient use of paint and reduced labor. From radio tubes to refrigerators—lawn mowers to lockers—pipe to pre-fab buildings—Ransburg electrostatic spray has been accepted as the most economical method of producing high quality finishes.

Ransburg ELECTRO-COATING CORP.

1234 BARTH AVENUE · INDIANAPOLIS 7, INDIANA, U.S.A.



Now, 99% EFFICIENCY

is obtained on many installations with the new Ransburg No. 2 Electro-Spray Process. The No. 2 Process is a revolutionary, new development born of tireless, probing research for a better method—for the best in quality and efficiency. Based upon an entirely new concept, the No. 2 Process is the ultimate in spray painting—in most cases the efficiency is in the high nineties, and in some instances the efficiency exceeds 99%. On most production lines, the No. 2 Process will give 25% to 75% more pieces per gallon than any other spray finishing system. The increase will be much larger over conventional hand spray methods . . .

AND IN ALL CASES, THERE IS NO OVERSPRAY TO BE EXHAUSTED!

Here's the

and

of the

Ransburg NO. 2 PROCESS

The Ransburg No. 2 Electro-Spray Process embodies an entirely new method of atomizing liquid coatings —Electrostatic Atomization.

In this Process, the article to be coated is carried by the conveyor past a radically new type spray "gun." The gun consists essentially of a hollow, cone-shaped head. Coating material is metered at a constant rate to the apex of the head, and rotation of the head spreads the material uniformly over its inner surface, causing the material to flow evenly to the outer edge.

A source of electrostatic high potential, having one terminal grounded and its other terminal connected to the head, creates a strong electrostatic field between the head and the article to be coated, which is grounded by the conveyor. The force of this field transforms the material into a spray of fine, charged particles and creates an irresistible attraction that pulls the spray particles to the grounded article. This accounts for complete electrostatic deposition.

Major variables such as atomizing air pressure and overspray exhaust air currents have been eliminated, and variations in spray pattern and fluid delivery have been greatly reduced. Thus, the No. 2 Process removes all dependence of spray painting upon the art and skill of the operator and the hand spray man. It permits positive duplication of results, and its ease of

set-up and operation makes it truly "push-button" painting.

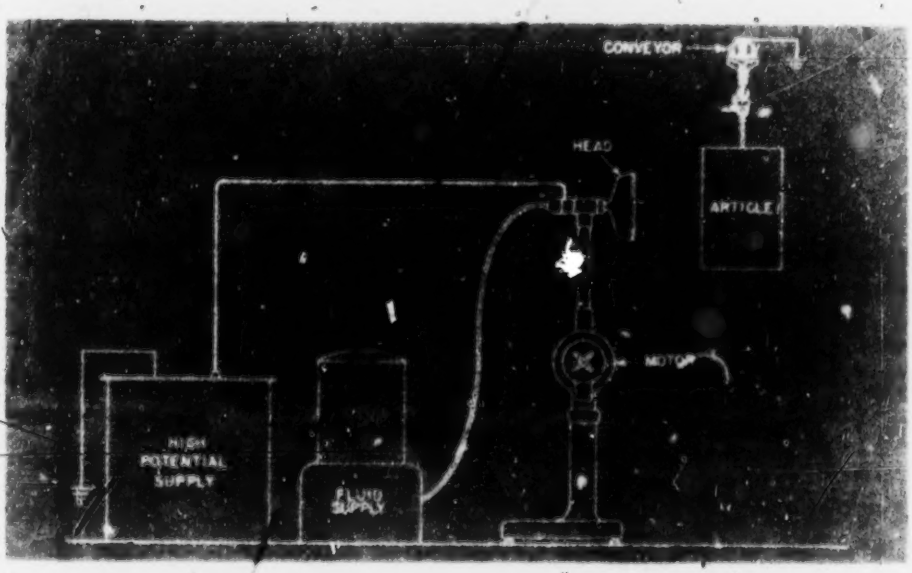
All of the paint leaving the spray head is deposited, and there is no overspray to be exhausted. No water-washed walls for collection or removal of wasted paint are necessary. When the shape of the article or the method of conveying does not permit complete deposition on the part; a backboard is employed as a simulated article.

No compressed air is used in the entire system; so the waste of paint inherent with air atomization does not exist. Ventilation of the area for control of solvent vapor is all that is required. This practically perfect painting efficiency has never before been approached on a spray painting production line.

In addition to the large paint savings, substantial economies are also effected by reducing air make-up, exhaust system heat loss, and clean-up maintenance.

By combining electrostatic atomization and electrostatic deposition, the No. 2 Process makes possible the ultimate in spray painting. High production, conveyorized, automatic painting is ushered into a new era by this Process.

In the following pages, a few of the initial applications of the No. 2 Process are shown and described. Their production results are proof of the almost fantastic coating efficiencies obtained with this Process.



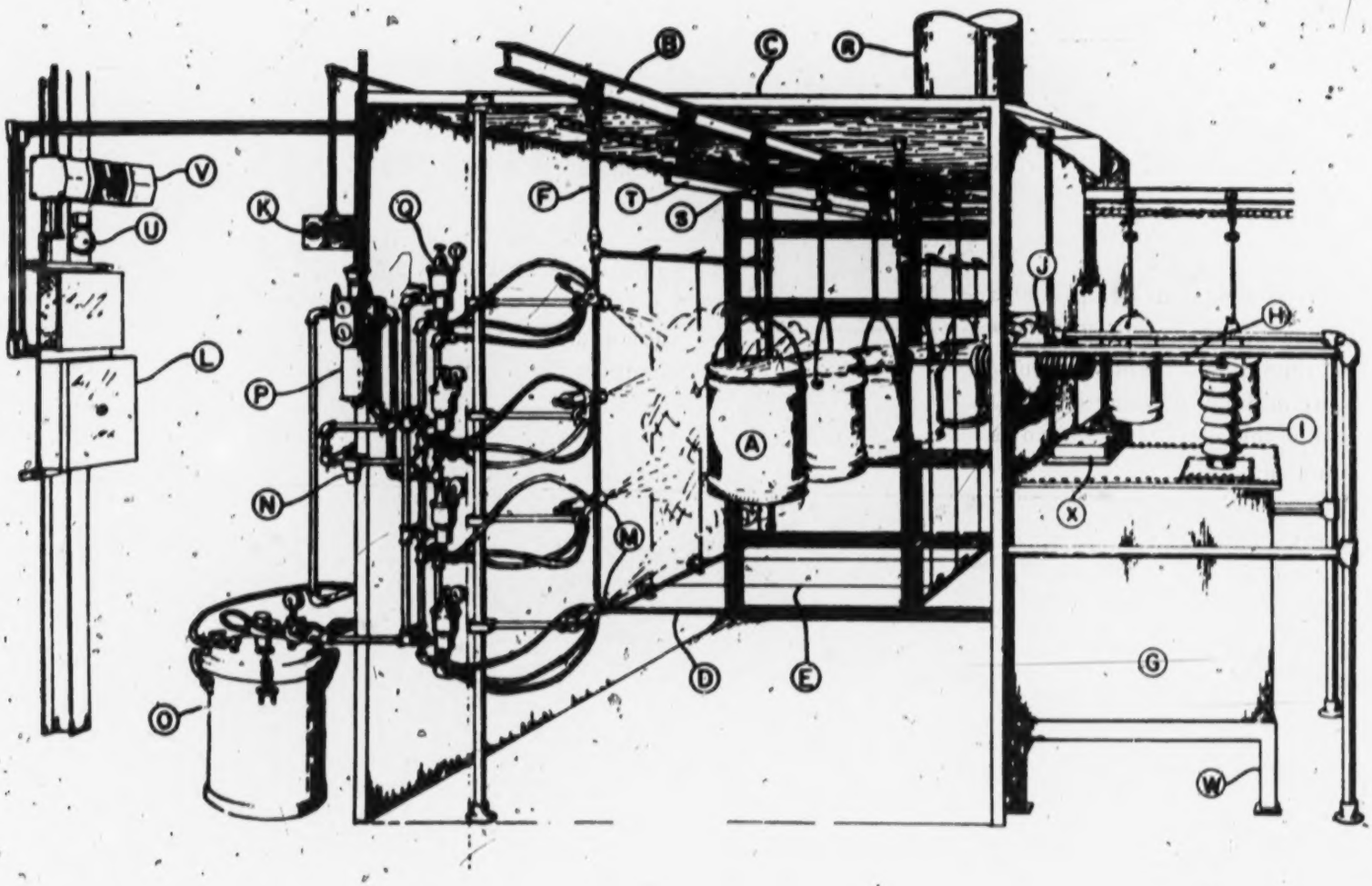
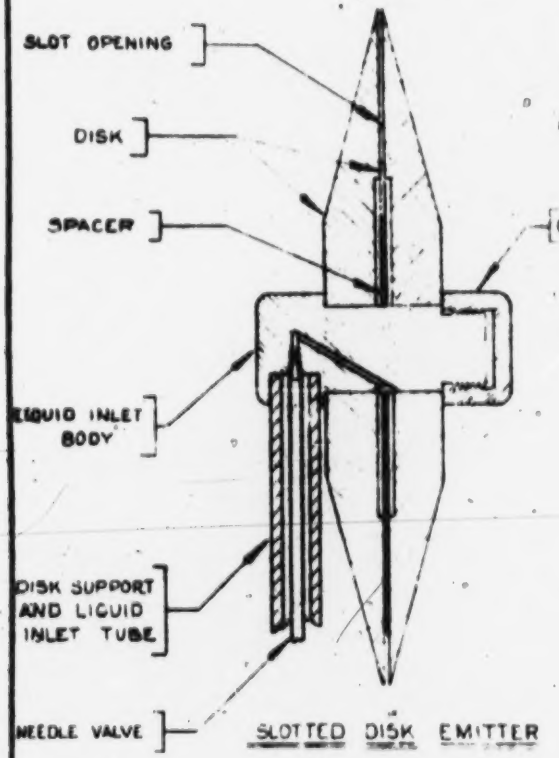


Fig. 1
Typical Installation
Employing Overhead Monorail Conveyor

DEFENDANT'S EXHIBIT NO. 7.

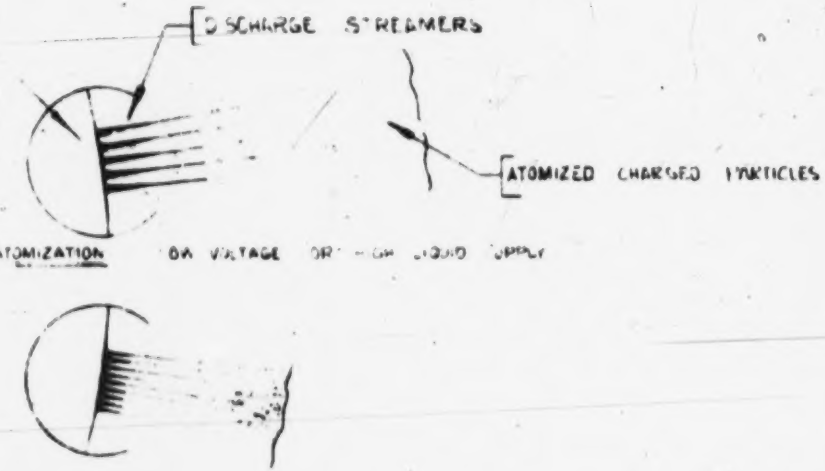
4660

15 - 55



SLOTTED DISK EMITTER

FIG. 1



COARSE ATOMIZATION OR VOLTAGE OR HIGH LIQUID SUPPLY

FINE ATOMIZATION HIGH VOLTAGE OR LOW LIQUID SUPPLY

FIG. 2

DEFENDANT'S EXHIBIT NO. 11-B.

1632

IN THE UNITED STATES DISTRICT COURT.
* * (Caption—56-C-262) * *

STIPULATION.

Whereas, this suit was filed on October 11, 1956, and

Whereas, subsequent thereto, on June 4, 1957, United States Letters Patent No. 2,794,417 issued to defendant, Ransburg Electro-Coating Corp., for Apparatus for Electrostatically Coating Articles; and

Whereas, plaintiff, Binks Manufacturing Company, has represented to defendant that plaintiff, since June 4, 1957, has used the emitter and its associated equipment constituting the electrostatic coating unit heretofore demonstrated to representatives of defendant at plaintiff's plant on or about December, 1956; and

Whereas, defendant has represented to plaintiff that it is defendant's position that such use constitutes an Infringement of at least claim 4 of said Letters Patent No. 2,794,417,

It Is Hereby Stipulated by and between the parties to the above identified cause, through their respective counsel, this Honorable Court consenting, as follows:

1. Defendant shall have the right to supplement its counterclaim to include in this suit its United States Letters Patent No. 2,794,417, and for that purpose shall have the right to file the supplemental counter claim attached hereto.

2. All previous proceedings, including pleadings, Interrogatories and depositions, filed or taken in connection with this case shall be used to the extent applicable with respect to said supplemental counterclaim with the same force and effect as if said Letters Patent No. 2,794,417 had been initially included in defendant's original counterclaim.

3. Plaintiff shall have thirty (30) days from the date of filing of said supplemental counterclaim in which to reply thereto, or otherwise plead.

Byron, Hume, Groen & Clement,
38 South Dearborn Street,
Chicago 3, Illinois,
Attorneys for Defendant.

Hill, Sherman, Meroni, Gross & Simpson,
/s/ Charles F. Meroni,
53 West Jackson Boulevard,
Chicago 4, Illinois,
Attorneys for Plaintiff.

Chicago, Illinois.
Dated: May 15, 1958.

IN THE UNITED STATES DISTRICT COURT.
* * (Caption—56-C-262) * *

STIPULATION UNDER RULE 42 (b).

It is hereby stipulated between the parties, through their counsel, this Honorable Court consenting, that:

Pursuant to Rule 42(b) of the Federal Rules of Civil Procedure this Court may order a separate trial or hearing on the amount of damages only and all other issues effecting liability will be tried during the trial commencing on December 15, 1958.

Otto R. Krause.
Attorney for Plaintiff,

Howard W. Clement,
Attorney for Defendant.

Date: 11-25-58.

IN THE UNITED STATES DISTRICT COURT.
* * (Caption—56-C-262) * *

STIPULATION REGARDING PLAINTIFF'S USE OF ACCUSED APPARATUS.

Plaintiff, Binks Manufacturing Company, through its counsel, hereby stipulates that since June 4, 1957, and in the United States it has used electrostatic spray-coating apparatus including its SK-661 emitter under the conditions and with the results set forth in its answers to Defendant's Interrogatories Nos. 2 through 7, 165 through 169, 173, 174, 175, 177, 178, and 180.

Charles F. Meroni /s/
Attorney for Plaintiff.

December 16, 1958.

467

Oct. 26, 1937. A. F. MESTON 2,097,233

ELECTRICAL DEPOSITION IN PATTERN FORM

Filed March 31, 1934 5 Sheets-Sheet 1

Fig. 1.

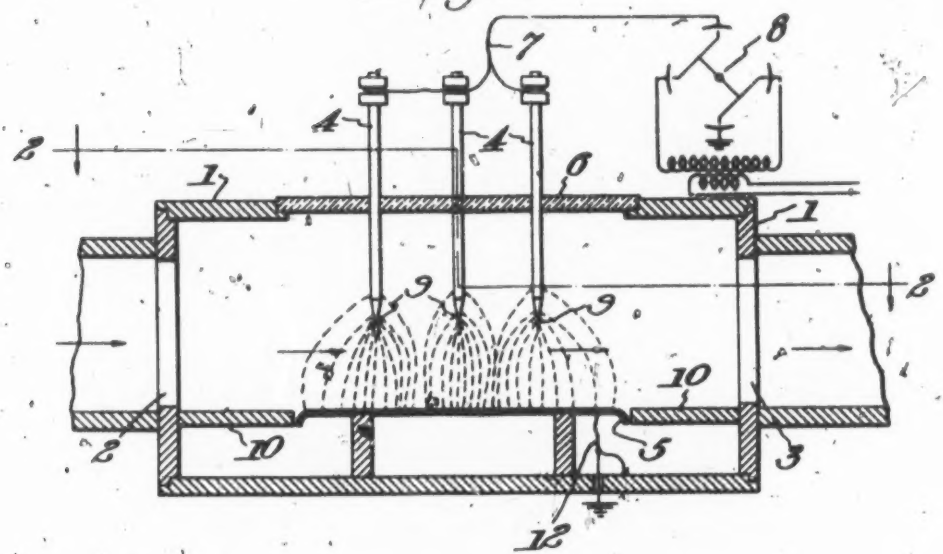
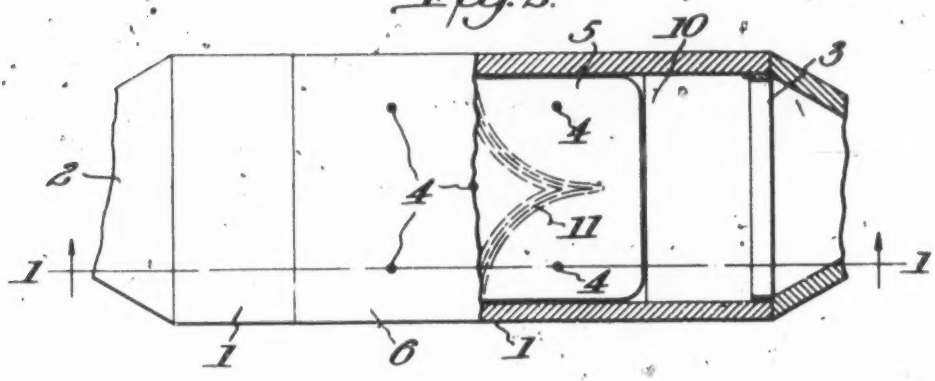


Fig. 2.



Inventor:
Archibald F. Meston

By Potter, Pierce & Schaffler
Attorneys.

469

Oct. 26, 1937. A. F. MESTON 2,097,233

ELECTRICAL DEPOSITION IN PATTERN FORM

Filed March 31, 1934 5 Sheets-Sheet 2

Fig. 3.

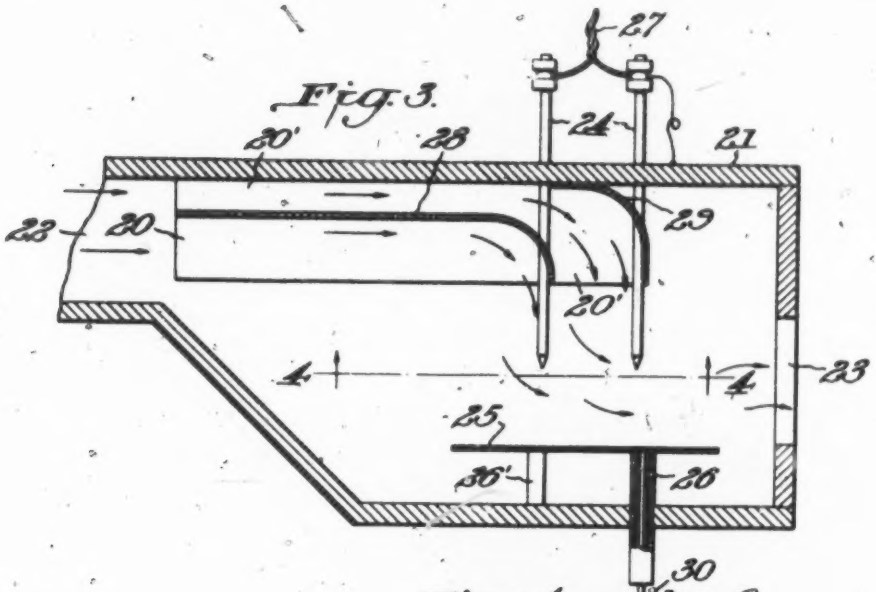
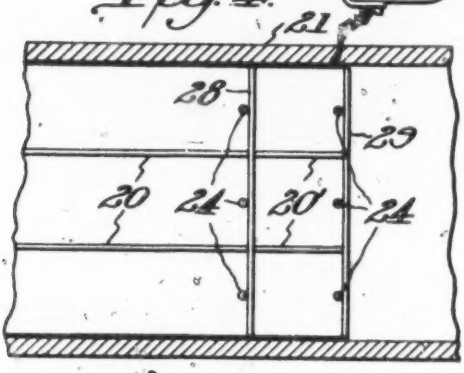


Fig. 4.



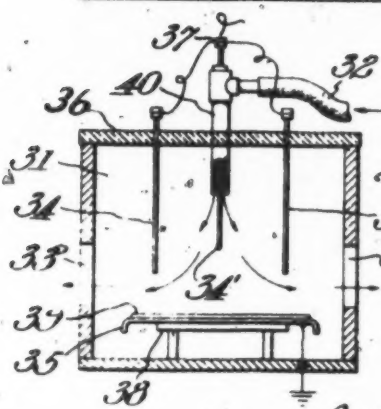


Fig. 5.

Inventor:
Archibald F. Meston

By Potts, Pierce & Scheffler
Attorneys.

Oct. 26, 1937. A. F. MESTON 2,097,233

ELECTRICAL DEPOSITION IN PATTERN FORM

Filed March 31, 1934 5 Sheets-Sheet 3

Fig. 6.

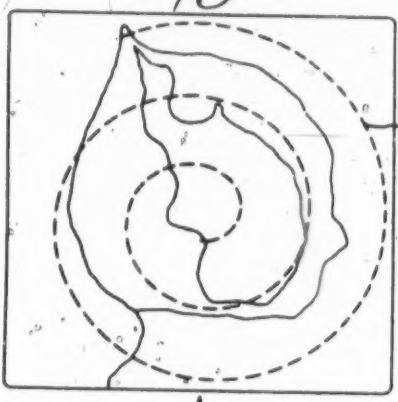


Fig. 7.

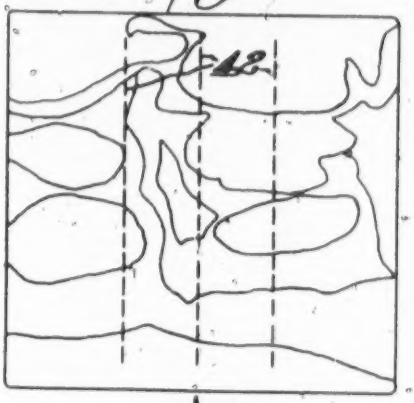


Fig. 8.

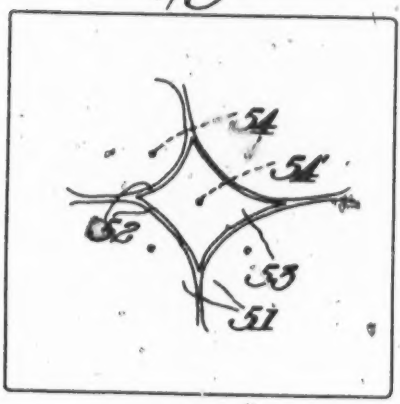


Fig. 9.

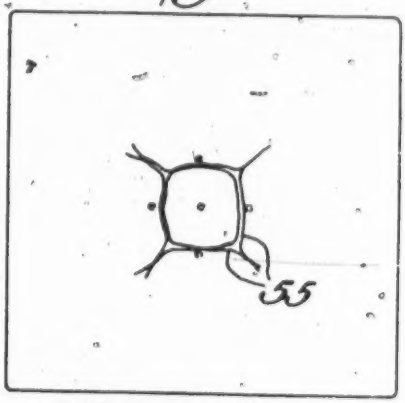


Fig. 10.

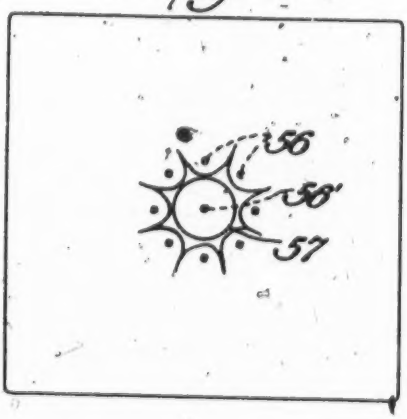
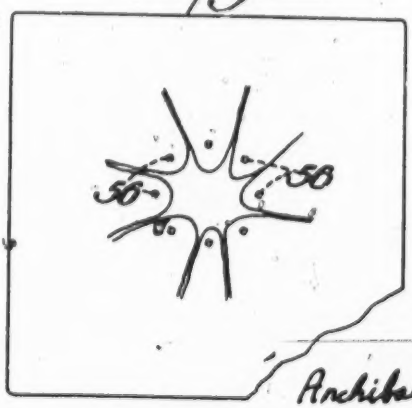


Fig. 11.



Inventor:
Archibald F. Meston
By Potter, Pierce & Schaffler
Attorneys

Oct. 26, 1937. A. F. MESTON 2,097,233

ELECTRICAL DEPOSITION IN PATTERN FORM

Filed March 31, 1934 5 Sheets-Sheet 4

Fig. 12.

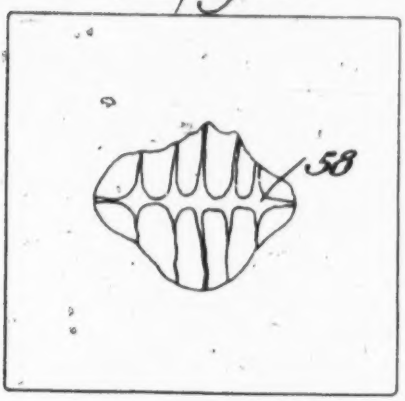


Fig. 13.

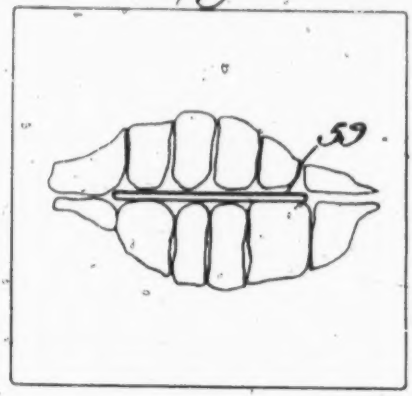


Fig. 14.

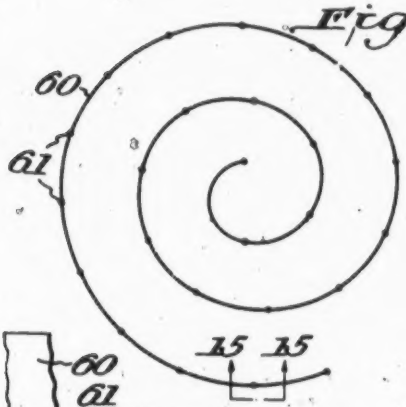


Fig. 15.

Fig. 17.

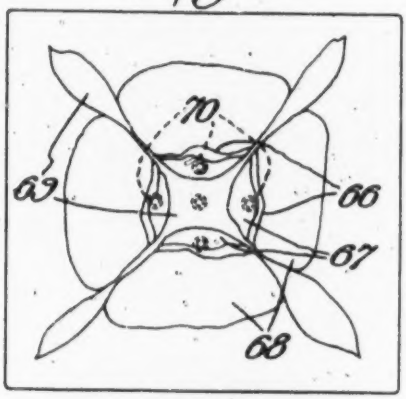


Fig. 16.

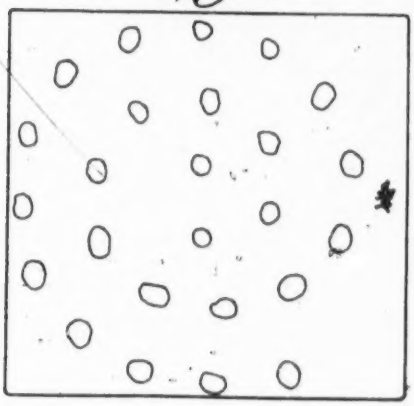
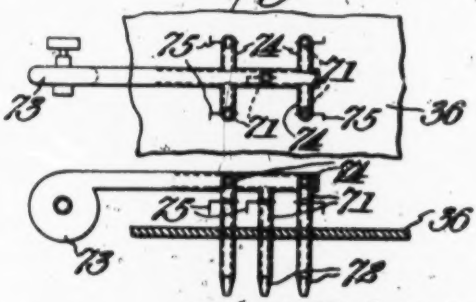


Fig. 18.



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Oct. 26, 1937. A. F. MESTON 2,097,233

ELECTRICAL DEPOSITION IN PATTERN FORM

Filed March 31, 1934 5 Sheets-Sheet 5

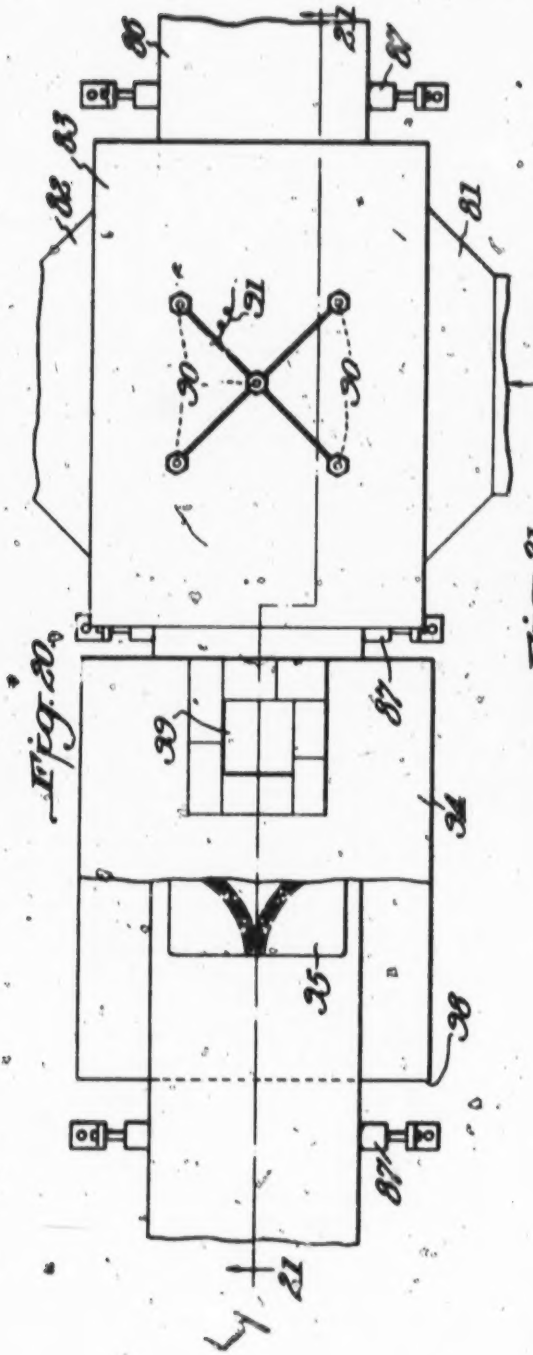

Fig. 20.

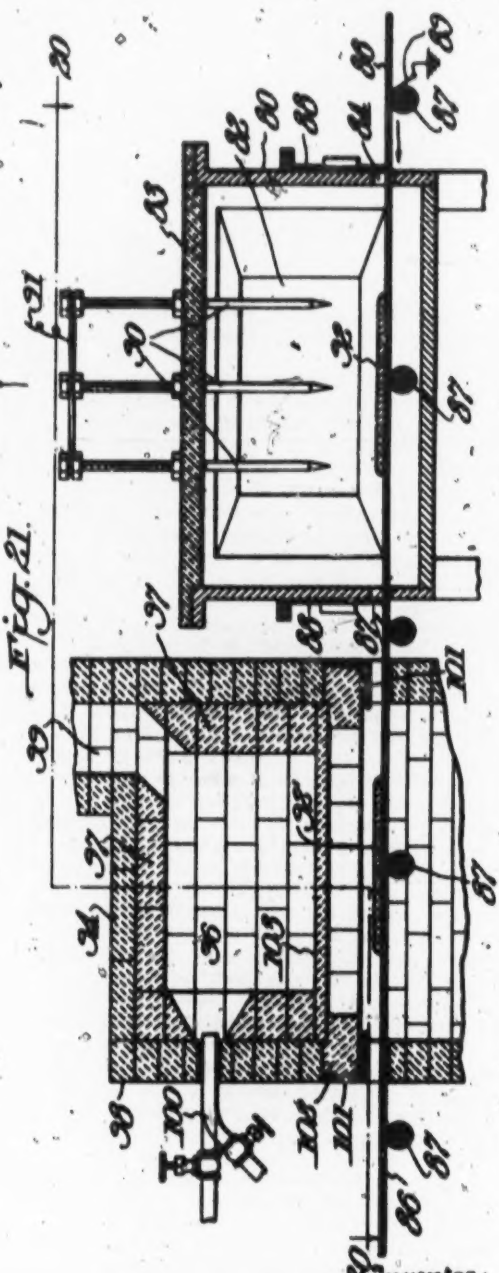

Fig. 21.

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2,097,233

UNITED STATES PATENT OFFICE

2,097,233

ELECTRICAL DEPOSITION IN PATTERN FORM

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Application March 31, 1934, Serial No. 718,891

10 Claims. (Cl. 41—1)

This invention has to do with the electrical deposition of comminuted material in the form of patterns. It provides apparatus for coating and/or decorating a surface with material which is conveyed to the vicinity of the surface as a finely divided suspension and is then directly deposited upon the surface in pattern form. As examples, an electric field can be used to deposit metal dusts, colored sands and enamels or dyes upon a surface in pattern form; and the material deposited can then be attached to or incorporated into the surface with adhesives or by heating or chemical action without manual arrangement.

The invention is of use in industries having problems in decorating surfaces and especially where the decorative coatings are made of materials supplied in finely divided form, such as those resulting from dry grinding, subliming, condensing or spraying operations. For instance, it permits an air floated powder immediately after leaving a classifier to be laid down in pattern form on a surface to be decorated, thus making use of the collection of the powder and its incorporation into a paste or paint before deposition. It also permits surfaces of extended area to be coated in pleasing outlines without resorting to stencils or other means which require manual operation and are awkward to handle in large sizes.

It is well known that free electric charges tend to move when in an electric field, and if the charges are attached to particles which are free to move, such as dust particles suspended in air, the particles will be moved with the electric charges towards the boundaries of the electric field. The phenomenon is especially effective when the electric field is of high intensity and of constant polarity. Electric fields are commonly described in terms of so-called lines of force and accepted characteristics of these lines of force are that they leave a conductor perpendicular to the surface; that they repel one another and therefore are distributed as evenly as electrode spacings and dielectric conditions permit; and that they will not enter narrow openings between conductors, but will terminate on the surfaces adjacent such openings as is illustrated in the use of a Faraday "cage". Advantage is taken of these characteristics in the present invention. By altering the contour of the electrode boundaries, the direction and concentration of the electric lines of force can be altered. This means that the direction and velocities of charged particles moving in the electric field are altered, making possible their deposition in patterned outline or decorative figures.

The effects resulting from changing the boundary of an electrode become very pronounced when the electrode comprises portions of great curvature, such as ridges and points which project towards the opposing electrode. When a high voltage difference is impressed across the dielectric between opposing electrodes, one or both of which have boundaries with such projecting portions, very high concentrations of lines of force exist in the vicinity of, and terminate on, the projections. If the dielectric is a gaseous fluid, the high electric stresses to which the gas is subjected in these regions will cause it to become ionized and streams of free charges (associated with ions and electrons) will move rapidly from (or to) the projections on the electrodes and set up movements in the gas known as "electric wind."

The changes that can be effected in an electric field in a gaseous dielectric in order to produce changes in the deposition of particles are, therefore: changes in the concentration and direction of the lines of force, changes which affect the production and distribution of free electric charges, and changes in gas movements due to electric wind. Of course, changes in the velocity of the gas passing through the electric field which may be brought about by the operation of a mechanical fan will also affect the deposition of particles carried into the electric field by the gas stream.

The foregoing discussion of the principles made use of in the present invention in terms of present day concepts is presented merely to assist in an understanding of the invention. The invention is not dependent, however, on any theories of operation, but involves novel, practical and useful apparatus for the deposition of materials in pattern form. The objects of the invention are set forth below, together with practical procedure for realizing these objects.

A principal object of the invention is to deposit electrically upon a surface to be coated and/or decorated with patterns or figures, particles which have been disseminated in the vicinity of the surface to be coated.

A further object of the invention is to provide means for depositing upon a surface in non-uniform but controllable manner material which has been suspended in a fluid in finely divided form without first collecting and removing the material from the fluid.

A further object is to place material in decorative outline on an extended surface without handling the material manually.

A further object is to provide for building deposits of material upon surfaces with means for controlling the outline and the depth of the deposits. Another object is to permit material to be deposited as a dry powder and in pattern form upon a surface and to be thereafter incorporated into said surface by heat and/or chemical action. Still another object is to lay down patterns upon a surface with material composed of particles having different characteristics and to shade the patterns by depositing the particles differentially.

Another object of the invention is to coat an extended surface with decorative outlines, the outlines on different portions of the surface being of equal depth by establishing an electric field essentially perpendicular to the surface to be coated and then introducing coating material in finely divided form into the electric field.

The manner of realising the above mentioned and other objects of the invention will be made clear in the following description, reference being had to the appended drawings, of which:

Fig. 1 is a side view, in sectional elevation, on line 1—1 of Fig. 2, of apparatus for carrying out the invention;

Fig. 2 is a plan view, partly in section on line 2—2 of the apparatus shown in Fig. 1;

Fig. 3 is a side view, in sectional elevation, of apparatus for utilizing the invention in somewhat modified manner;

Fig. 4 is a fragmentary horizontal section on line 4—4 of Fig. 3;

Fig. 5 is an end view, in sectional elevation, of other apparatus useful in carrying out the invention;

Figs. 6 to 13, inclusive, illustrate patterns which have resulted from the use of the invention;

Fig. 14 is a plan view of the discharge edge comprised in the apparatus which formed the pattern shown in Fig. 16;

Fig. 15 is a side view of a fragmentary portion as taken along line 15—15 of the discharge edge shown in Fig. 14;

Figs. 16 and 17 illustrate other patterns made by use of the invention;

Fig. 18 shows in plan view the arrangement of certain details;

Fig. 19 is a side elevation of the details shown in Fig. 18;

Fig. 20 illustrates in plan view, partly in section on line 20—20 of Fig. 21, apparatus for the deposition and fusing of material in powdered form; and

Fig. 21 illustrates in sectional elevation on line 21—21 the apparatus shown in Fig. 20.

The apparatus illustrated in Figs. 1 and 2 comprises a chamber or casing 1 with fluid inlet 2 and fluid outlet 3, electrode elements 4, opposing complementary electrode member 5 and removable cover member 6. The chamber can be made of either conducting or insulating material, but it is essential that electrode elements 4 be maintained in insulated relationship to electrode 5 and an advantageous construction for providing this relationship is to make cover member 6 of insulating material and have it support elements 4. Elements 4 are usually connected to a source of electrical energy at high potential, as indicated diagrammatically at 8, by connector 7; and member 5 is usually grounded through connector 12, for example. The fluid in which the pattern forming particles are suspended is forced into the apparatus, by means of a fan, for instance, and passes through the electric field between points 9 of elements 4 and plate electrode 5. The particles are deposited on plate 5 in pattern form, as indicated at 11, and the fluid, largely freed from suspended particles, leaves the apparatus through outlet 3. Members 10 are mainly to supply boundaries for the fluid, but can be used to influence the shape of the electric field to some degree by making them of suitable material and form.

Figs. 3 and 4 show apparatus comprising chamber 21, fluid inlet 22, fluid outlet 23, fluid directing means 29, 29', 28 and 29, discharge electrode elements 24, pattern receiving electrode 25, insulating electrode supports 26 and 26' and high potential lead 30 passing through combined support and bushing 28. In this construction it is convenient to ground the discharge elements 24, the chamber 21 and the directing means 28, 29, and 29 through connector 27, and to connect electrode 25 to a source of high potential energy (not shown) through connector 30. The outstanding characteristic of the apparatus shown in Figs. 3 and 4 is that means are provided for directing the fluid and suspended particles into the electric field in a direction more or less parallel to the lines of force. In the apparatus shown in Figs. 1 and 2 the fluid enters at right angles to the lines of force.

Fig. 5 illustrates apparatus embodying other means for bringing the fluid into the electric field in a direction parallel to the lines of force. Chamber 31 has a top 36 of insulating material through which a tube 40 projects and the particle-bearing fluid, brought to the apparatus through a tube 32, for example of rubber, which insulates it from the supply source, flows through tube 40 into the electric field between the ends of discharge electrode elements 34 and plate electrode 35. The fluid leaves the chamber through outlets 33. The desired difference in potential between the elements 34 and complementary electrode 35 is obtained similarly to the manner shown in Fig. 1, connection 37 in Fig. 5 corresponding to connection 7 in Fig. 1. Electrode 35, which is supported on stand 38, may or may not directly receive the patterned deposit. As shown, a plate 39 has been placed upon electrode 35 to receive the deposit. If this plate is conducting, the upper surface of the plate will constitute the boundary of the electric field, but if non-conducting, the upper surface of plate 35 will be the boundary or terminal of the electric field and the field will pass through plate 39. Elements 34 are held in cover 36 by a friction fit, although more positive means can be utilized, and they can be positioned to various distances above plate 35. Element 34', which is supported within tube 40, is purposely shown farther from plate 35 than members 34 because of the change in pattern that this difference in discharge distance provides.

Reference will now be made to some of the patterns illustrated and the method of making them. In this invention emphasis is laid upon concentrating portions of electric fields as by the use of discharge points and making these portions of definite concentration and outline so the patterns resulting from their use will be definite and reproducible. To illustrate this point attention is called to the results obtained when the discharge surface of electrodes is not definite. The pattern shown in Fig. 6 was made in apparatus similar to that shown in Fig. 1, but instead of using points 9 in the formation

of corona discharges, a spiral of 1/8 inch diameter wire was suspended at the level of points 9—the plane of the spiral being parallel to and approximately 4" above electrode plate 5. Such a spiral is indicated with dash lines 61 on Fig. 6 as if superimposed directly above the pattern made by the discharge from the spiral. A voltage drop of 67.5 kv. was impressed intermittently across the electrodes, connections being made to a mechanical rectifier installation as shown in Fig. 1. The wire discharge electrode was made negative; the plate was grounded and positive with respect to the wire electrode. The voltage was applied intermittently because it has been found that continuous application of voltage difference does not result in an even deposition of material when the particles are floated into the field slowly, and in this instance the air, which was used as a carrier fluid, was passed through the apparatus at less than three feet per second. The material deposited had been ground to a fineness which permitted over 90 percent to pass 200 mesh. It was floated over plate 5 by the air stream and precipitated from the air upon that plate by the electric forces set up when voltage was applied. Floating the particles over the surface to be coated in this manner before applying a voltage difference makes for even deposits, especially if air velocities and voltages are not of too high values.

The higher the voltage maintained across the electrodes the more definite the outline, but it should be kept below arcing or "spark-over" values because spark-overs tend to puncture the deposited pattern and make for unsteady conditions. Regardless of potential, however, a smooth wire electrode seldom forms a definite pattern. The corona beads shift along the wire, the electric wind and ionic bombardment are not definite, either as regards position or intensity, and the pattern cannot be expected to be regular in outline even if it is more or less definite. The pattern made by the spiral of smooth wire shown in Fig. 6 is very irregular and is not generally reproducible. For some purposes, however, such informal designs are desirable.

The pattern shown in Fig. 7 was made by using three smooth 1/8 inch diameter wires as discharge electrodes as indicated by 42. They were held above and parallel to receiving plate electrode 5 in the apparatus shown in Fig. 1 and were spaced 1½ inches apart. The air used as a carrier fluid was passed through the apparatus at 23 feet per second. The voltage between wires and plate was maintained continuously, at between 65 and 75 kv., with the wires negative. Here again a very informal pattern was formed.

The pattern in Fig. 8 was made with the apparatus shown in Fig. 5. Four pointed rods 34 were symmetrically arranged around central point 34' as corners of a square having sides two inches long, as indicated by the dots 54 and 54' on the pattern. All points were four inches above plate 35, and a voltage drop of between 67 and 70 kilovolts was impressed across the electrodes. The points were grounded and the plate was connected to the high potential side of a mechanical rectifier, an insulated bushing being used in the manner shown at 26 in Fig. 3, causing 67 to 70 kilovolts to be impressed between points and plate. The material deposited was electrically collected ash from gases leaving powdered fuel burners and was exceedingly fine, most of it passing 325 mesh. It was redispersed in air in apparatus (not shown) comprising a chamber and dispersing fan and then blown through pipe 60 which was ¾ inch standard pipe into the electric field, below the discharge points. The distribution of particles in the pattern was unique in that the larger and darker particles, mostly carbonaceous, were found in outer portions 51, the inner region 53 was of heavy gray very evenly distributed, and the lines 52 were lighter in color and of extremely finely divided material, thinly deposited.

Fig. 9 shows a design made similarly to the design in Fig. 8, except that rods 34 were drawn up until the points were 1/8 inch farther from plate 5 than was the point on rod 34'. The portions of the electric field terminating on these points now had less influence on that portion of the field terminating on the central point, on rod 34', and the lines of the pattern became concave as shown at 55.

Fig. 10 shows another pattern made with the apparatus shown in Fig. 5. The discharge electrode was made up of eight elements arranged on a circle four inches in diameter about point 34' as a center. On the pattern these are indicated at 56 and 56', respectively. The points were of negative polarity with respect to plate 35 and a voltage drop of 67 kv. was impressed across the four inch spacing between points and plate. When the points are made positive with such a set up, the voltage should be lowered to not over 50 kv. with most pattern forming materials. Positive corona gives a different and usually a much less distinct pattern.

The pattern in Fig. 11 was made similarly to the pattern in Fig. 10, except that central point 34 was entirely withdrawn resulting in the absence of circle 57.

The patterns in Figs. 12 and 13 were also made in apparatus similar to that shown in Fig. 5, but instead of pointed members 34, parallel strips projected downward from cover 36. These strips were one and one-half inches apart and along the bottom edge of each strip were six points, one inch apart. The region of light deposition is shown at 58. It is here that the effect of the mutual interference of the several portions of the electric field is readily seen. If a slot 59 is placed in the collecting plate along this interference zone, the result will be much the same, as shown in Fig. 13. Changes in the contour of the collecting plate do make some changes in the patterns formed, but in general the changes are controlled more definitely by changing the discharge elements and it is most practical to associate these elements with what has been termed the discharge electrode—the electrode that does not receive a pattern.

Figs. 14 and 15 illustrate the discharge electrode used in forming the pattern shown in Fig. 16. Spiral 90 is made of a metal strip two inches wide with points 91 spaced 1½ inches apart projecting out ¼ inch from one edge. This electrode was held over plate electrode 5 in Fig. 1 with each point 4 inches above the plate. Different air velocities and voltages were used with somewhat different results. The pattern shown in Fig. 16 was made with an air flow of 1½ to 2 feet per second and a voltage difference of 67.5 applied intermittently—one second on and one second off.

Fig. 17 illustrates what can be accomplished with the present invention in building patterns in prominent relief. The pattern was made with the discharge elements shown in Figs. 18 and 19.

Tubes 71 are made from ⅛ inch standard pipe with the ends 72 sharpened to provide discharge edges. These edges may be nicked to give positive positions for the "corona beads" or local discharges, but the limited length of the edges on ⅛ inch pipe makes this unnecessary. The gaseous medium containing suspended particles was forced to the tubes 71 by blower 73, through conduits 74 having dampers 75 for controlling the flow to each tube.

The pattern was made with the four outside tubes 71 placed with their centers on the corners of a 1½ inch square. Their position relative to the pattern is indicated by the dotted circles 76. In this pattern in Fig. 17 portions 66 are very prominent. They really comprise ridges rising about ⅝ inch above the plane of the pattern receiving plate and can be formed with sharp edges. Portions 67 are smoother with very light deposits. Portions 68 are apt to be from ⅛ to ¼ inch in depth and less smooth than portions 67. Portion 69 is almost free from deposit. The changes in depth of deposit make these patterns very definite and distinctive. They are more distinctive when made with particles that differ as regards size and color and electric characteristics. The electric forces arrange the particles of different characteristics in pleasing arrangements, often with variegated effects.

It will be seen that the invention provides apparatus for the electrical deposition of particles in pattern form which includes receiving electrode means and complementary electrode means insulated from the receiving electrode means and comprising a plurality of ionizing portions positioned to define either a planar or a non-planar surface spaced from the receiving electrode means whereby topical concentration and deposition of suspended particles between the electrode means is effected when an electrical field is maintained thereacross.

Figs. 20 and 21 show apparatus that can be used to apply the present invention in commercial manner. It is particularly adapted to the decorating of metal simulated "tile" used in covering the walls, floors and ceilings of public buildings. A deposition chamber 80 with gas inlet 81 and gas outlet 82 and electrically insulated roof member 83 has an inlet 84 and outlet 85 for a conveyor flight 86. The conveyor member 86 is of heat resisting material; for instance, it may be made of links of heat resisting chrome steel alloy. It is supported upon rollers 87 and adjustable doors 88 limit the openings 84 and 85 where it passes into and out of chamber 80. The conveyor is preferably held at ground potential as indicated by grounding means 89. Projecting through roof 83 are discharge elements 90 connected to a source of high potential energy, not shown, by connector 91. Elements 90 are shown as pointed rods; for example of steel, but instead of rods, tubes as shown in Figs. 5 and 19 can be used, in which case the material for the patterns can be introduced through the tubes and gas inlet 81 can be dispensed with.

The metal blanks upon which the patterns are to be deposited are brought into chamber 80 on conveyor 86 and held under discharge elements 90 as shown at 92 while the deposition is being made. When the blank is in proper position doors 88 are closed as far as possible, preferably by automatic means (not shown), and a gas which can be air but which may be any other gas; for example, non-oxidising gases taken from furnace 94, is introduced through inlet 81. This gas carries in suspension the particles to be precipitated upon blank 92. The particles may be of colored sand, feldspar, kaolin, tin oxide and other metallic pigments or combinations of such materials. When the particles have floated into the space between the points of elements 90 and the blank 92, voltage is applied and the particles precipitated. For some patterns a gas velocity of 15 to 35 feet per second is set up and the voltage is maintained continuously until the pattern is of the required depth. For other patterns the particles are floated over the blank at low velocities perhaps as low as one foot per second and the voltage is applied intermittently until the pattern is of satisfactory depth and outline. In general it may be said that a pattern is formed in from ten seconds to two minutes.

If tubes are used to bring in the particles and they are projected directly towards the blank 92 the velocity of the gas leaving the tubes must be very low, preferably less than one foot per second, or else the effect of the air stream may be too large a factor as compared with the electric forces. It has been found advisable to keep the particles suspended in a gas stream moving in a closed circuit, including a fan functioning as a particle disseminator, and having the gas path through the depositing chamber 80, a shunt in parallel with this circuit being opened and closed when a pattern is to be deposited. Settling of the particles by gravity is thus minimized.

Referring again particularly to Figs. 20 and 21, a coated blank 92, after leaving chamber 80, is brought into the bottom of furnace 94 on conveyor 86 and is held in the position shown at 92' while another blank 92 is being coated in chamber 80. Furnace 94 comprises a combustion chamber 96 which includes a shell of heat refractory brick 97 inclosed in heat insulating brick 98. A burner is provided at 100 and an outlet for the gases of combustion at 99. The ends of the combustion chamber are held above conveyor 86 by steel members 101, which members are protected from intensive heat radiation by refractory brick 102. A comparatively thin plate or sheet of material having the properties of resisting disintegration at high temperatures and yet permitting heat to pass through in efficient manner is shown at 103. This sheet is placed in horizontal position above conveyor 86 and seals off combustion chamber 96 and prevents the gases circulating in that chamber from blowing against the pattern on blank 92. Sheet 103 may be made of fused silica or silicon carbide or other material which permits the heat radiating from the hot gases and carbon in chamber 96 and from the roof and walls of that chamber to be transmitted in large part to the pattern on blank 92 that is to be fused or alloyed or otherwise thermically treated.

It is to be understood that modifications can be made in the furnace if needed to effect synchronism of heat treatment with pattern forming. The furnace can be lengthened so that blank 92 will remain under heat for two or three pattern deposition periods. Or if the deposition period must be extended beyond a proper time for heat treatment, a heat resisting shield, not shown, can be placed over the blank 92 after it has been properly fused to protect it from excessive heating. Good results have been obtained by first alloying at rather high temperature, by means not shown, the surface of blanks 92 with cobalt compounds, then after cooling, as required, depositing a pattern in chamber 80 of

material that fuses at comparatively low temperture upon the alloyed surface and then fusing the pattern in furnace 24.

The manner of attaching the patterns to the surface to be decorated, just described, is only one of many methods which can be used in carrying out the invention. For instance, another manner of fixing the pattern to the surface treated is to spray the pattern with an adhesive such as a solution of shellac in alcohol, which in turn after evaporation of the alcohol can be sprayed with moisture resisting coatings.

Another method of attaching the material forming the patterns is to impregnate the material with substances which will promote chemical reactions in the materials. For instance, if plaster of Paris is laid down as a pattern, it can be hardened by subjecting the pattern to an atmosphere of high humidity or even a super-saturated atmosphere which will bring about the well known hydrating reaction in the plaster of Paris.

Pigments deposited upon porous surfaces can be impregnated with linseed oil, for instance, by spraying the under side of the material with linseed oil and allowing it to work up into the pigment by capillary action. The oil will harden by oxidation and polymerization and cohere the particles of pigment in this way.

Where the electrode and electric field are capable of forming patterns directly upon a surface, the surface itself can be coated with an adhesive before the pattern making operation is begun. In the making of some patterns, however, there is a shifting of the material after initial deposition and this cannot take place if the material is placed initially against a surface covered with an adhesive.

Numerous combinations of electrode elements can be made up which will give countless patterns of different outlines and characteristics. It is believed, however, that the foregoing description makes it readily possible for those versed in the art of electrical deposition to obtain such patterns through reasonable trials and without the need of further inventive ingenuity.

It will be understood that deposition under conditions usually found in dust removing equipment utilizing electric discharge does not furnish patterns of distinctive outline. When the electric field is maintainined continuously there is selective action at the entrance of the field which usually makes the deposit heaviest at that place. A method of avoiding this difficulty as disclosed in the foregoing description comprises intermittently applying the electric field which permits the pattern forming particles to float uniformly over the surface to be coated before deposition is effected. While the voltage is temporarily reduced, the particles can be floated over very extended surfaces over which several sets of electrodes are supported, and then, upon application of a high voltage difference, one large or several smaller patterns will be deposited upon the extended surface. So, as has been previously stated, good patterns are often obtained by raising the velocity of the particle carrying fluid to comparatively high values, say from 18 to 40' per second. At this velocity the particles penetrate well into the electric field before deposition and many useful patterns are made with such velocities and the continuous application of the electric field.

It will often be found advantageous to adjust the humidity of the carrier gas in order to obtain more satisfactory deposition. For example, a relative humidity of at least 50% is usually advantageous and frequently a relative humidity of over 75% is desirable.

In using tubes for the combined purpose of effecting discharges and of conducting the particles into the electric field countless different patterns can be made when the different tubes are variously spaced and the particles entering through these tubes are caused to enter at different velocities.

I claim:—

1. Apparatus for the electrical deposition of particles in pattern form comprising receiving electrode means adjacent which the pattern is to be deposited, complementary electrode means insulated from the receiving electrode means and comprising a plurality of ionizing portions adjustably positioned relative to each other and to the receiving electrode means, energizing means for maintaining a strong electric field between the receiving and the complementary electrode means, and means for bringing a suspension of particles to be deposited into the space between said electrode means.

2. In apparatus utilizing an electric field for depositing particles in pattern form, an electrode defining one boundary of the electric field, said electrode comprising a plurality of conduits for conducting suspensions of particles into the electric field having corona-forming portions adjacent the outlets thereof, said conduits and corona-forming portions being positioned to cause topical concentration of suspended particles in said field, and a complementary electrode defining the opposing boundary of the electric field.

3. In apparatus utilizing an electric field for depositing particles in pattern form, an electrode defining one boundary of the electric field, said electrode comprising a plurality of corona-forming portions positioned to cause topical concentration of suspended particles in said field, at least one of said corona-forming portions consisting of a conduit for conducting suspensions of particles into the electric field, and a complementary electrode defining the opposing boundary of the electric field.

4. In apparatus utilizing an electric field for depositing particles in pattern form, an electrode defining one boundary of the electric field, said electrode comprising a plurality of conduits having corona-forming portions adjacent the outlets thereof, said conduits and corona-forming portions being positioned to cause topical concentration of suspended particles in said field, means for passing a suspension of particles through said conduits into the electric field, and a complementary electrode defining the opposing boundary of the electric field.

5. In apparatus utilizing an electric field for depositing particles in pattern form, an electrode defining one boundary of the electric field, said electrode comprising a plurality of conduits having corona-forming portions adjacent the outlets thereof, said conduits and corona-forming portions being positioned to cause topical concentration of suspended particles in said field, means for passing a suspension of particles through said conduits into the electric field, control means to vary the flow of said suspension through the several conduits respectively, and a complementary electrode defining the opposing boundary of the electric field.

6. Apparatus for producing a patterned coating on a surface comprising means defining a

chamber, opposed electrode members in said chamber, at least one of said electrode members comprising a plurality of mutually interfering corona-forming portions positioned to cause topical concentration of suspended particles in said field, means for supporting a surface to be coated adjacent one of said electrode members, means for supplying a gaseous fluid containing suspended coating particles between said electrode members, means for impressing a high potential across said electrode members, and means for agglomerating the deposited particles.

7. Apparatus for producing a patterned coating on a surface comprising means defining a chamber, opposed electrode members in said chamber, at least one of said electrode members comprising a plurality of mutually interfering corona-forming portions positioned to cause topical concentration of suspended particles in said field, means for supporting a surface to be coated adjacent one of said electrode members, means for supplying a gaseous fluid containing suspended coating particles between said electrode members, means for impressing a high potential across said electrode members, and heating means for agglomerating the deposited particles.

8. Apparatus for the electrical deposition of particles in pattern form comprising receiving electrode means adjacent which the pattern is to be deposited, complementary electrode means insulated from the receiving electrode means and comprising a plurality of ionising portions positioned to define a surface spaced from the receiving electrode means whereby to cause topical concentration of suspended particles between said electrode means when an electrical field is maintained thereacross, energising means for maintaining a strong electrical field between the receiving and the complementary electrode means, and means for bringing a suspension of particles to be deposited into the space between said electrode means.

9. Apparatus for the electrical deposition of particles in pattern form comprising receiving electrode means adjacent which the pattern is to be deposited, complementary electrode means insulated from the receiving electrode means and comprising a plurality of ionising portions positioned to define a non-planar surface spaced from the receiving electrode means whereby to cause topical concentration of suspended particles between said electrode means when an electrical field is maintained thereacross, energising means for maintaining a strong electrical field between the receiving and the complementary electrode means, and means for bringing a suspension of particles to be deposited into the space between said electrode means.

10. Apparatus for the electrical deposition of particles in pattern form comprising receiving electrode means adjacent which the pattern is to be deposited, complementary electrode means insulated from the receiving electrode means and comprising a plurality of ionising portions positioned to define a plane surface spaced from the receiving electrode means whereby to cause topical concentration of suspended particles between said electrode means when an electrical field is maintained thereacross, energising means for maintaining a strong electrical field between the receiving and the complementary electrode means, and means for bringing a suspension of particles to be deposited into the space between said electrode means.

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Nov. 17, 1942. H. E. BRAMSTON-COOK 2,302,289

ELECTRIFIED SPRAY METHOD AND APPARATUS

Filed Dec. 6, 1938

Fig. 1.

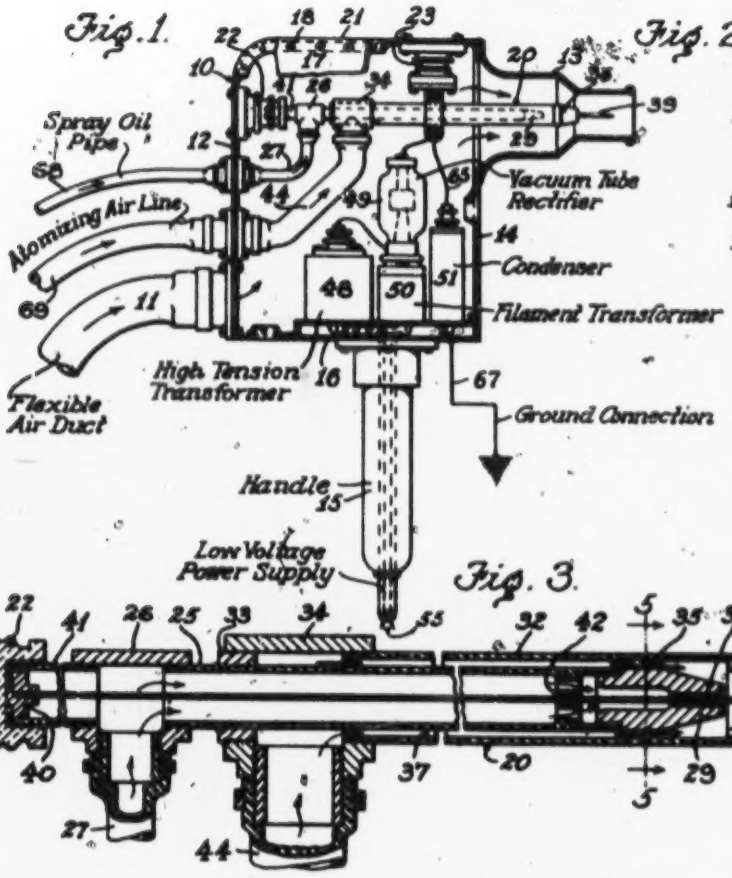


Fig. 2.

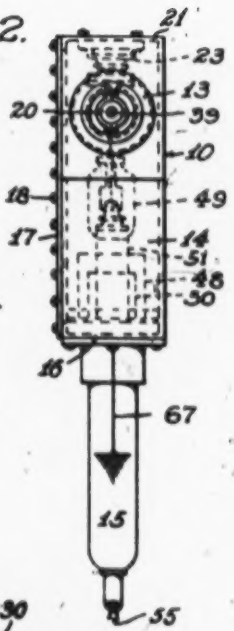


Fig. 3.

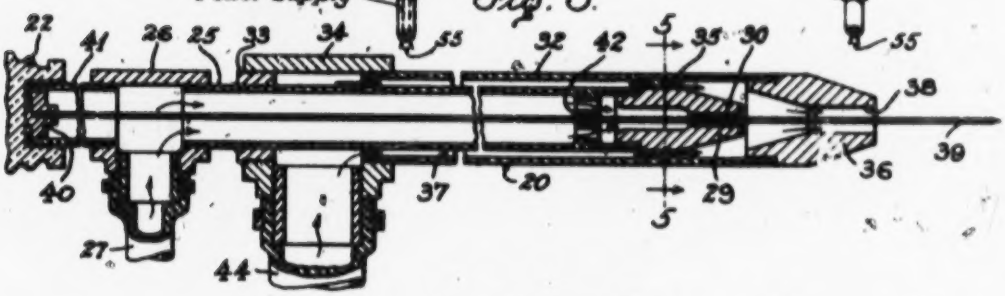


Fig. 4.

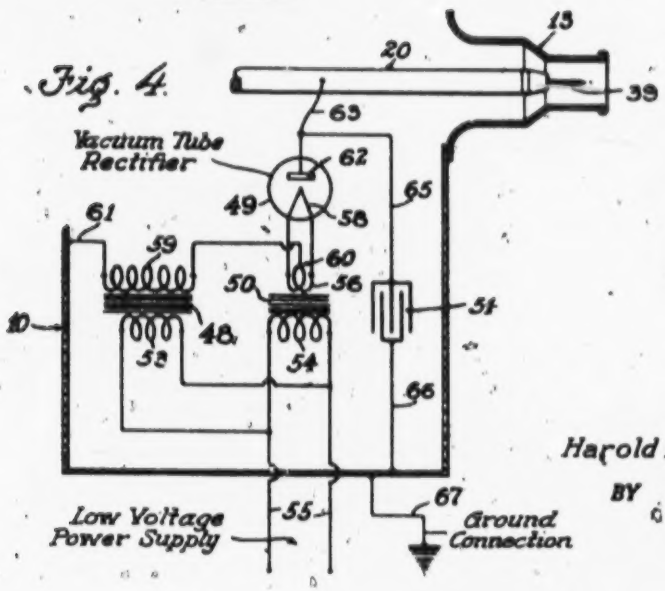
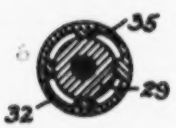


Fig. 5.



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UNITED STATES PATENT OFFICE

2,302,289

ELECTRIFIED SPRAY METHOD AND APPARATUS

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Application December 6, 1938, Serial No. 244,194

6 Claims. (Cl. 21—8)

This invention relates to liquid sprayers and particularly to sprayers for the application of insecticidal and fungicidal oils to plants.

In the conventional method of applying such oils to plants an emulsion of the oil in water is usually made and the emulsion sprayed upon the plants with the result that upon evaporation of the water, the oil is left in the form of an extremely thin film of fairly uniform thickness and distribution.

However, the employment of water as a carrier for the spray is not always desirable or permissible. For example, in pest control in deciduous fruit growing areas such as the Pacific Northwest, the freezing temperatures occasionally encountered during the spraying season would, if immediately following the application of a water emulsion, result in severe damage to the trees. Also, in certain locations sufficient water for the preparation of a spray oil emulsion is not always available at the required time.

The efficient and effective application of spray oils to plants, particularly, trees, by mechanical atomization of the spray oil alone without a water carrier, has heretofore presented several difficulties. When sufficiently high velocities of the atomized liquid are employed to effectively reach the higher and more distant branches of trees, the velocity is such that the liquid particles tend to stream around the branches rather than to impinge upon them. When low velocity atomization is employed, the higher limbs of trees cannot be effectively reached without overapplication on the lower branches. It has also been found that the oil, even if finely atomized, quickly coalesces to form larger droplets which are unsuited to accomplishing an even distribution of the spray oil upon the plant surfaces and that, in all events, a substantial proportion of the spray fails to impinge upon any part of the plant or tree and is thus wasted.

It is, therefore, an object of this invention to present a method and apparatus for the efficient and effective application of spray oils to plants and to accomplish the same without employing extraneous carrier liquids.

The invention resides broadly in a method and apparatus for the atomization of spray liquids in the presence of an intense electric field whereby the resultant cloud of atomized liquid spray particles is electrified and causing said electrified atomized spray to move to the surfaces to be sprayed under the influence of an electric field.

Other objects and features of the invention will be evident hereinafter.

Referring to the drawing which illustrates one preferred embodiment of the invention, Fig. 1 is a side sectional elevation of the spray generating apparatus. Figure 2 is a front elevation of the apparatus of Figure 1. Figure 3 is a cross-sectional detail of the spray nozzle. Figure 4 is a wiring diagram of the electrical elements of the apparatus. Figure 5 is a cross-section of the spray nozzle taken on lines 5—5 of Figure 3.

The apparatus of the invention is as follows: The body of this apparatus, as shown in Figures 1 and 2, comprises a substantially rectangular metal body or container 10 having an air inlet duct 11, attached at the lower rear end 12, an air and spray outlet nozzle 13 projecting forward from the upper end 14, and a handle 15 extending downward from the bottom 16 thereof. A removable side cover plate 17 adapted to allow ready access to the interior of the sprayer body container 10 is held in place by means of a plurality of studs as shown at 18.

On the interior of the enclosure 10, a spray nozzle 20 shown in enlarged detail in Figure 3, is supported from the inside back 12 and top 21 by means of insulators 22 and 23, respectively, extending into and coaxial with the outlet nozzle 13.

The spray nozzle 20, which is shown in cross-sectional detail of Figure 3, comprises an inner tube 25 terminating at the rear end in a T-connection 26 through which spray liquid is adapted to be supplied from the attached flexible tubing 27, and terminating at the forward end in an inner spray head 28 having an orifice 30 of reduced diameter. The nozzle 20 also comprises an outer concentric tube supported and connected, at the rear end, to the inner tubing 25 by means of a threaded bushing 33 and T-connection 34 and supported near the forward end by means of a perforate spider 35 best shown in section in Figure 5. The said outer tube 32 terminates at the forward end in an outer spray head 36 having an orifice 38 of reduced diameter. Extending coaxially throughout the length of the nozzle 20 and passing out through the orifices 30 and 38 is a pointed metal rod electrode 39. The said rod electrode is supported in its coaxial position by means of a threaded plug 40 in the nipple 41 which extends rearward from the T-connection 26, and near the forward end it is supported by the perforate centering spider 42. As stated before, spray liquid is adapted to be supplied to the inner spray head 28 through the inner tubing 25, flexible pipe 27 and T-connection 26, and also atomizing air or other suit-

able fluid under pressure is adapted to be supplied to the nozzle spray head 36 through a flexible pipe 44, T-connection 34 and through the annular space 37 between the inner and outer tubes 25 and 32, respectively. Flexible pipes 27 and 44 are made of insulating material such as rubber or duprene.

Also enclosed within the body 10, as shown in Figure 1, the wiring diagram of which is shown in Figure 4, is the electrical equipment adapted to supply a high tension unidirectional electric current to the nozzle assembly and to the central pointed electrode 30, the said equipment comprising a high tension transformer 48, vacuum tube rectifier 49, tube rectifier filament supply transformer 50 and high tension filter condenser 51.

Referring particularly to the wiring diagram of Figure 4, the primaries 53 and 54 of the transformers 48 and 50, respectively, are connected in parallel to insulated electrical conductors 55 which serve to carry the low tension current supply thereto and which enter the sprayer enclosure 10 through a conduit provided through the center of the handle 15. The secondary 56 of the filament transformer 50 is connected across the vacuum tube rectifier filament 60 and serves to supply the heating current thereto. The secondary 58 of the high tension setup transformer 48 is connected at one end to the rectifier filament by way of the filament transformer center tap 59 and at the other end to the metal sprayer body 10 at 61. The said body 10 being a conductor, the electrical circuit is completed therethrough to the metal outer nozzle 12. The anode 62 of the vacuum tube rectifier 49 is in turn connected to the nozzle assembly 29 and the central rod electrode 30 by way of conductor 63. The series high tension circuit comprising the body 10, high tension transformer secondary 58, and vacuum tube rectifier 49, serve to supply an unidirectional high potential between the nozzle electrode assembly 29, 30, and the outer nozzle 12. The high tension condenser 51 is connected across the above outlined circuit by means of conductors 65 and 66 for the purpose of substantially smoothing out or reducing the peak of the resultant unidirectional pulsations.

The body 10 of the sprayer is connected to a suitable grounded terminal by way of a flexible insulated conductor 67.

Flexible pipe 68 and flexible line 69 serve to supply spray-liquid and air, respectively, to the pipes 27 and 44 which lead to the before described spray nozzle 29. The air duct 11 serves to supply air under pressure from a suitable blower to the sprayer body 10 through which it passes to the outer nozzle 12.

The operation of the apparatus is as follows:

With the high potential supply set in operation an unidirectional electric potential is maintained between the nozzle electrode assembly 29, 30 and the outer electrode nozzle 12, preferably of sufficient gradient to produce a silent electric discharge or a corona discharge therebetween, particularly between the rod electrode 30 and nozzle 12. Spray liquid and air may then be supplied through the spray oil pipe 68 and the atomizing air line 69, respectively, to the nozzle assembly 29. The spray liquid passes therefrom through the inner tube 25 and issues from the orifice 38 in the nozzle head 29 in the form of a high velocity stream where it meets and mixes with air under pressure flowing through the annular space between the tubes 25 and 32. The resulting mixture of air and spray under pressure passes out of the spray head 36, with high turbulence, through the annular space formed between the orifice 38 and the rod electrode 30 in the form of a finely atomized stream.

As the thus formed stream of the air and atomized spray liquid mixture passes outward along the length of the rod electrode 30, it is subjected to the ionizing effect of the corona discharge from the said rod electrode whereby the finely divided liquid particles comprising the said atomized spray are each imparted electrical charges of like polarity and of substantially equal potential with respect to the outer nozzle electrode 12. The said outer nozzle electrode 12 being grounded through sprayer body 10 and the ground connection 67, the thus charged atomized liquid particles are, therefore, at high electric potentials of substantially equal value with respect to all grounded objects such as for example plants and trees. The effect of this charged state of the atomized liquid-air mixture is twofold. First, the thus formed equally charged liquid spray particles, in effect, tend to repel one another and thus resist coalescence, with the result that the thus produced electrified cloud of atomized spray liquid persists for a longer period of time, affording thereby better opportunity for its more uniform and effective contact with surfaces to be coated. Second, the said atomized liquid spray particles, being at a high potential with respect to all the surrounding grounded objects, will be attracted and tend to move toward and precipitate in a layer upon the nearest surfaces of such grounded objects.

Thus, for example, an electrified cloud of atomized spray liquid carrying a high potential positive charge as produced in the above described manner and directed toward the branches and leaves of a plant or tree carrying a high potential negative charge with respect to said electrified cloud of spray liquid, will be attracted to said branches and leaves and quickly precipitated thereon in the form of a thin uniformly distributed film of liquid.

While the electrical apparatus by way of illustration has been shown and described as adapted to impart positive electrical charges to the spray liquid, with respect to ground, the apparatus may obviously be arranged to impart negative charges to the spray liquid with respect to ground with equal effect.

When it is desirable or necessary to project the atomized spray liquid cloud for a considerable distance, this is more effectively accomplished by supplying a relatively large volume of air under suitable pressure through the flexible air duct 11 to the spray body 10, from which it flows through the annular space between the outer nozzle 12 and the spray nozzle assembly 29 and issues from the forward end of the outer nozzle 12 in the form of a stream of air of sufficient velocity to carry the atomized spray-liquid cloud to a greater distance than would be possible when relying upon the velocity of the atomized spray-liquid alone. This provision for projecting the atomized spray liquid cloud in a carrier stream of air is particularly advantageous when it is necessary to reach distant or high tree branches.

Unidirectional electric potentials maintained between the nozzle electrode assembly 29—30 and the outer nozzle 12, which are effective in giving the atomized spray oil droplets sufficient charge to minimize coalescence until they contact the leaves and limbs of the plant or tree being

sprayed, may range from 10,000 to 25,000 volts. When employing these voltages, the sprayer apparatus may be equipped with the outer electrode 18 having an inner diameter of approximately 2½ inches. For higher voltages, it is necessary to increase the diameter of the nozzle 18 in order to prevent flash-over between the said outer nozzle 18 and spray nozzle 20. The diameter of the outer spray nozzle 18 is preferable that which will produce at the voltages employed a potential gradient of such value between the inner surface of the nozzle 18 and the outer surface of the nozzle 20 and rod electrode 30 that a persistent silent electric discharge or corona discharge is maintained therebetween without flash-over.

The spray liquid employed may be any spray liquid but preferably a paraffinic or aromatic oil, for example, an aromatic type of oil having a viscosity of approximately 50 seconds Saybolt at 100° F. Such an oil can be readily atomized and is of sufficient viscosity, particularly at the lower temperature encountered in the spraying seasons, to prevent substantial drainage from the leaves and branches.

The foregoing is merely illustrative of a preferred method and embodiment of the invention and is not to be considered limiting since many variations may be made by those skilled in the art within the scope of the appended claims.

I claim:

1. Coating apparatus comprising in combination a means to disperse finely divided coating material in a gas stream, a substantially annular electrode, a rod electrode of relatively small diameter positioned substantially coaxially within said annular electrode, means to maintain a corona discharge through the annular space between said electrodes and means to pass said gas stream carrying dispersed finely divided coating material through said corona discharge in said annular space.

2. A method of coating surfaces with finely divided coating material which comprises dispersing a finely divided coating material in a gas stream, passing said dispersed finely divided coating material through a corona discharge maintained between a rod electrode of relatively small diameter and a second electrode spaced from said rod electrode and dispersing the thus electrified finely divided coating material by a second gas stream and causing the thus dispersed material to contact the surface to be coated.

3. A method of coating plants with a spray liquid which comprises atomizing the spray liquid by a gas stream and immediately thereafter passing said atomized spray liquid through a corona discharge maintained between a rod electrode of relatively small diameter and a second electrode spaced from said rod electrode and dispersing the thus electrified spray liquid by a second gas stream thereby forming an electrified floating cloud of said spray liquid and causing said cloud of spray liquid to contact the plants to be sprayed.

4. Coating apparatus comprising in combination means to disperse finely divided coating material in a gas stream, a rod electrode of relatively small diameter, a second electrode spaced from said rod electrode and having a larger surface than said rod electrode, means to maintain a corona discharge between said electrodes and means to pass said gas stream carrying dispersed finely divided coating material through said corona discharge.

5. Coating apparatus comprising in combination means to disperse finely divided coating material in a gas stream, a rod electrode of relatively small diameter, a second electrode spaced radially around the axis of said rod electrode, means to maintain a corona discharge between said electrodes and means to pass said gas stream carrying dispersed finely divided coating material through said corona discharge.

6. Coating apparatus comprising in combination a means to disperse finely divided coating material in a gas stream, a substantially annular electrode, a rod electrode of relatively small diameter positioned substantially coaxially with respect to said annular electrode, means to maintain a corona discharge through the annular space between said electrodes and means to pass said gas stream carrying dispersed finely divided coating material through said corona discharge in said annular space.

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Nov. 16, 1943. H. P. RANSBURG ET AL 2,334,648

METHOD OF SPRAY COATING ARTICLES

Original Filed June 29, 1939 2 Sheets-Sheet 1

FIG. 1

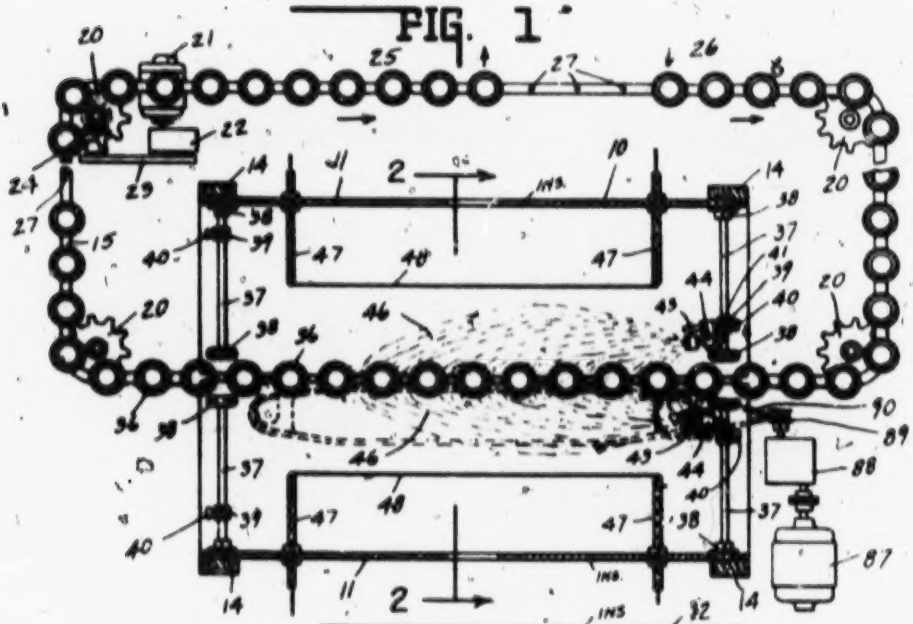
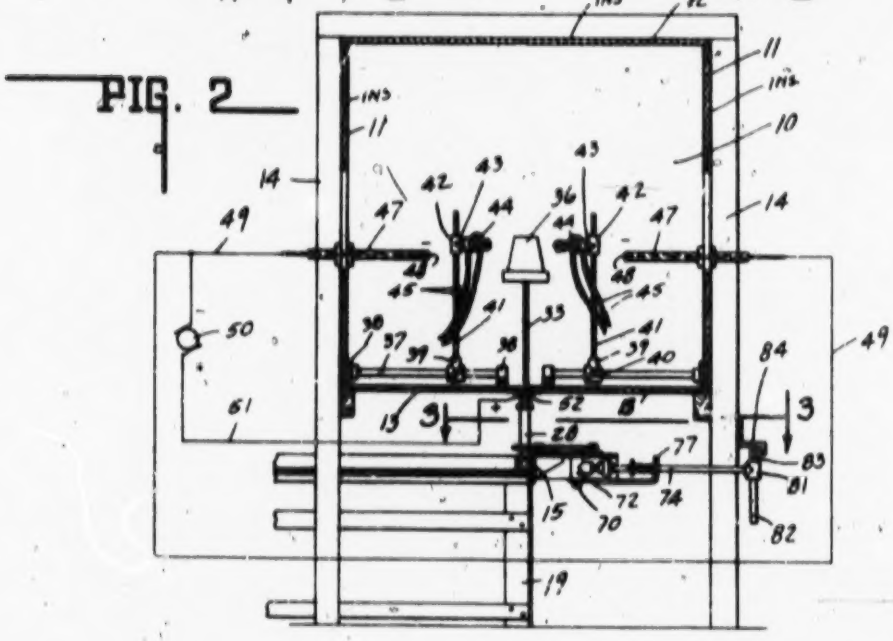


FIG. 2



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METHOD OF SPRAY COATING ARTICLES

Original Filed June 29, 1939 2 Sheets-Sheet 2

FIG. 3

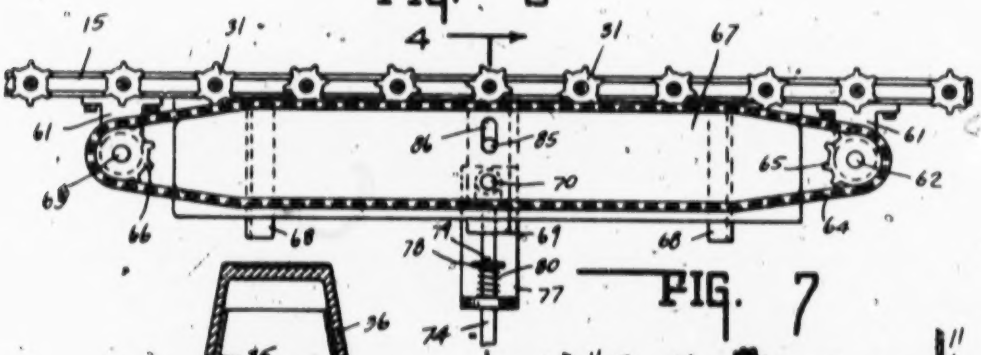
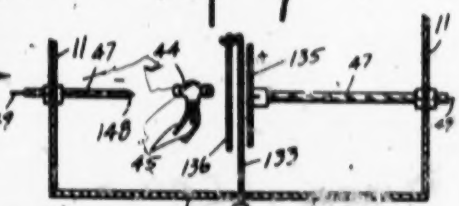


FIG. 7



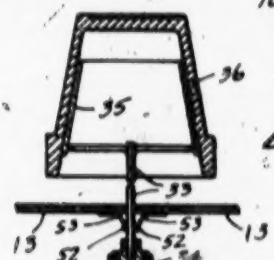


FIG. 4

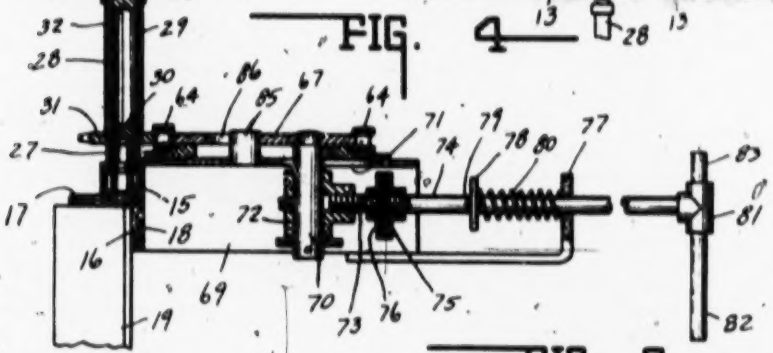


FIG. 5

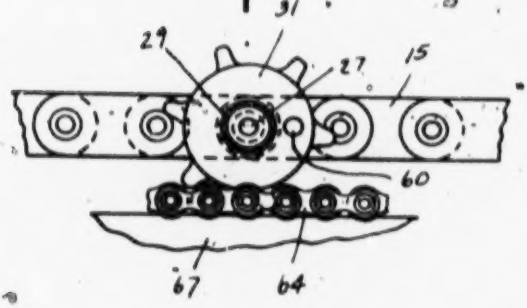
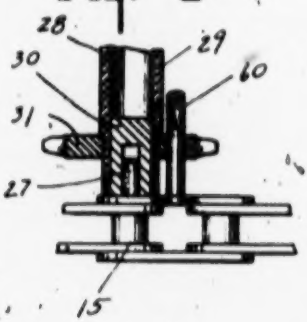


FIG. 6



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Patented Nov. 16, 1943

2,334,648

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UNITED STATES PATENT OFFICE

2,334,648

METHOD OF SPRAY-COATING ARTICLES

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Original application June 20, 1938, Serial No. 214,708. Divided and this application December 7, 1939, Serial No. 308,624

2 Claims. (Cl. 117—17)

This invention relates to a method of spray coating articles. The present application is a division of application Serial No. 214,708, filed June 20, 1938.

In spray coating methods involving the application of a siccative coat such as paint, varnish, lacquer, etc., to an article or surface to be treated, in which an electrostatic field is used it has heretofore been the practice to provide a collecting electrode and a discharge electrode between which an electrostatic field is set up. Usually the article to be coated is the collecting electrode and the discharge electrode is in the form of a spray gun or other device used to direct a spray of coating material into the electrostatic field. In some cases the discharge electrode has been an object placed near the spray gun or in the path of the spray from the gun rather than the gun itself. The whole has been enclosed in a metal cabinet maintained at the potential of the discharge electrode. The theory of operation of such apparatus has been that the spray particles in touching or passing near a positively charged discharge electrode, for example, pick up initial positive charges which cause them to be attracted to the negatively charged collecting electrode and to be repelled from the positively charged walls of the cabinet.

We have found, however, that spray particles do not behave in the manner to be expected from the application of this theory. Even though the gun itself is the discharge electrode and all particles of the spray may then be expected to be electrically charged, still the spray particles apparently move toward a positively charged electrode as readily as toward a negative one, other things being equal. The walls of the cabinet, even when charged at the same potential as the gun, have substantially the same attractive effect as when charged at the opposite potential. In cases where the discharge electrode is placed in the path of the spray said electrode apparently acts as a collector of spray particles.

One object of the present invention is generally to increase the efficiency of spray coating methods of the type described and particularly to reduce the amount of coating material lost by deposition on the walls of the cabinet and on the discharge electrode. This object is attained in part, first, by substituting a cabinet formed completely of insulating material for the metallic cabinet heretofore used; second, by placing the discharge electrode as completely as possible out of the path of the spray from the gun; and third, by suitably proportioning the sizes of the discharge and collecting electrodes.

The substitution of an insulated cabinet for a metallic one in any given installation materially reduces the amount of spray material collected thereon. In some installations the deposition of spray material on the cabinet has been practically eliminated whereas with a metal cabinet a heavy coating of such material quickly appeared on the cabinet. Apparently only such particles as receive an initial velocity and direction from the gun such that they cannot be deflected by the electrostatic attraction of the electrodes can reach the walls of the insulated cabinet, whereas, with a metal cabinet, a large number of such particles are actually attracted to the cabinet irrespective of the potential at which the cabinet is maintained.

The behavoir of the particles indicates that it is unnecessary to give them an initial charge by contact or proximity to an electrode charged in the opposite potential to the collecting electrode. Apparently particles discharged into an electrostatic field are attracted to either electrode. Other things being equal, the attractive effect of a positively charged electrode is considerably greater than that of a negatively charged electrode but the attractive effect of any electrode increases immensely with an increase in the size of electrode. These facts have made it possible to increase the efficiency of the apparatus by placing the discharge electrode out of the path of spray particles and by making the discharge electrode relatively small and the collecting electrode relatively large. For the coating of small objects the discharge electrode may be in the form of a point, while for a succession of articles moving on a conveyor the discharge electrode is preferably in the form of a fine wire or a series of points arranged parallel to the direction of travel.

Another object of the invention is to provide efficient means for coating articles having a surface area too small to comprise an efficient collecting electrode. This object is attained by grouping a plurality of such articles in such way as to cause all members of the group to be presented simultaneously to the discharge electrode in such manner that their aggregate area is much greater than that of the discharge electrode.

Another object of the invention is to coordinate the velocity and direction of the spray with the strength of the electric field and the position of the article to be coated in such manner that as

little as possible of the spray fails to reach the articles. In the ordinary spray gun used for paint spraying, particles of varying sizes are created and these particles lose their initial velocities at various distances from the gun, depending upon their size. In prior practice in the painting of small articles particularly, many of the larger particles reach the region of the articles to be coated with such a high velocity remaining that they cannot be pulled in by electrostatic attraction and are carried past the article. Small particles, on the other hand, lose their velocities before they can approach close enough to the articles to be attracted electrostatically. In the present invention, in one of its preferred forms, a series of articles to be coated is moved in a predetermined path adjacent to the spray gun. The gun is directed roughly parallel to the path or inclined at an acute angle to the path so that the articles successively pass close to the points at which the initial velocities of the particles of varying sizes are lost. Thus the particles of all sizes find themselves in the region of one of the articles at the time that their initial velocities have been sufficiently reduced to permit the same to be electrostatically attracted to the article. By this means a large percentage of the paint ordinarily lost because of the varying size and velocity of the spray particles actually reaches the articles.

Another object of the invention is to minimize the hazard of explosion in electrostatic spray painting with materials having inflammable solvents.

Another object of the invention is to provide an efficient method for electrostatic spray painting of articles formed of non-conducting materials.

Other objects and features of the invention will be understood from the accompanying drawings showing a preferred form of apparatus by means of which the invention may be practiced and from the following description and claims:

Fig. 1 is a plan view of a spray painting apparatus constructed in accordance with a preferred form of the invention and having the cabinet shown in section. Fig. 2 is a vertical sectional view taken on the line 2—2 of Fig. 1. Fig. 3 is a plan view of conveyor apparatus used with the invention and is taken substantially on the line 3—3 of Fig. 2. Fig. 4 is an elevational sectional view taken on the line 4—4 of Fig. 3. Fig. 5 is a plan view of a detail of the apparatus of Figs. 3 and 4. Fig. 6 is an elevational view of the same partly in section. Fig. 7 is an end elevational view showing an adaptation of the invention to the coating of a different type of object.

In the preferred form of the apparatus shown in the drawings there is provided a cabinet 10 consisting of side walls 11, top 12 and floor plates 13, all supported by vertical posts 14. The cabinet, including the vertical posts 14, is preferably constructed entirely of electrically non-conducting materials such as wood or Bakelite or other suitable plastics. Attention is called particularly to the use of non-conducting material for the supporting posts 14. Even though an insulated cabinet is used, if the supporting posts are of metal, an appreciable deposit of coating material is found on the inner wall of the cabinet in the region of the supporting posts. As will be apparent from the drawings, the cabinet is completely open to the atmosphere at both ends. It has been found that when the combined areas of the open ends of the cabinet measured in square feet is at least equal to one-third of the total volume of the cabinet measured in cubic feet, there is no danger of explosion with electrostatic deposition of paints or enamels using ordinary commercial solvents. If the area of the open ends is less than this figure, the interior of the cabinet approaches too closely to a confined space in which an explosive mixture may be accumulated. In the cabinet illustrated in the drawings, the ratio of end area to volume is approximately one square foot to three cubic feet.

Beneath the floor of the cabinet there is provided a conveyor chain 15 supported on a trackway formed by an angle iron 16, an angle iron 17 and a plate 18 (Fig. 4). Said trackway is suitably supported by legs 19. The conveyor chain is trained about sprockets 20 and may be continuously driven by a motor 21 operating one of said sprockets through a reduction gear unit 22, a belt drive 23 and beveled gears 24. The path of the conveyor chain is best seen in Fig. 1 and leads from beneath the cabinet past an unloading station 25 and a loading station 26 and then again beneath the cabinet. At suitable intervals along the conveyor chain there are provided upwardly extending pins 27 each adapted to enter a mating opening in the lower end of a carrier unit 28. Each of said carrier units, as best seen in Fig. 4, includes a sleeve 29 preferably formed of insulating material and having in its lower end a plug 30 provided with an opening to receive the pin 27. A sprocket 31 is mounted near the lower end of the sleeve 29. A plug 32 is secured in the upper end of the sleeve 29 and is provided with a recess adapted to receive an upwardly extending rod 33. A collar 34 tightly secured about the upper end of the sleeve 29 prevents undesired displacement of the plug 32. The rod 33 extends upwardly through an opening between the two bottom plates 13 of the cabinet and carries at its upper end an electrode 35 herein shown as of frusto-conical shape formed of sheet metal and serving as a support for an article 36 to be coated. In the example shown herein the article is in the form of a flowerpot and may be of non-conducting material, such as ceramic ware.

At each end of the cabinet close to the floor there are mounted a pair of rods 37 suitably supported in fittings 38 and each having mounted thereon one or more slidable fittings 39. Said fittings 39 may be secured at any desired place along the rods 37 by means of thumb screws 40 and each of said fittings is adapted to receive a vertical rod 41. Fittings 42 are carried by the vertical rods 41 and are similar to the fittings 39. Said fittings 42 carry horizontal rods 43 adapted to support spray guns 44. Said spray guns may be of a well known commercial form and are connected by tubing 45 to a suitable source of a coating material of siccative nature such as paint, lacquer or enamel and a source of compressed air for atomization. By means of this construction the spray guns may be positioned as desired adjacent either end of the cabinet. In the arrangement shown in the drawing two such guns are used at one end of the cabinet and are located to direct a spray 46 of coating material in the general direction of the opposite end of the cabinet. One of said guns is positioned on each side of the path of movement of the articles 36 through the cabinet. Preferably all or a part of the supporting structure for the guns is formed of insulating material and the tubing 45 is also of non-conducting material. The guns are, therefore, isolated from the electrical apparatus

and do not impart any electrical charge to the spray particles nor tend to attract stray particles of the coating material.

On each of the side walls 11 of the cabinet there is mounted a pair of tubular insulating members 47 extending inwardly toward the path of travel of the articles 36. An electrode 48 in the form of a fine wire is strung between the inner ends of each of the insulators 47 and extends generally parallel to the path of travel of the articles. Each of said electrodes extends outwardly through one or both of the insulators 47 and is connected by a conductor 49 to one terminal of an electrical generating apparatus 50 shown diagrammatically in Fig. 2. The opposite terminal of said apparatus is connected by a conductor 51 to a pair of wires 52 (Fig. 4), which extend longitudinally beneath the floor of the cabinet and are supported on spring clips 53 carried by the cabinet floor. The wires 52 are adapted to engage the vertical rods 39 in their travel through the cabinet and thus serve to make an electrical connection between the generating apparatus 50 and each of the electrodes 38. Preferably the generating apparatus is adapted to supply direct current with a voltage of the order of 100,000 volts. The discharge electrodes 48 are preferably connected to the negative terminal and the collecting electrodes 38 to the positive terminal. By this means an electrostatic field of high intensity is set up between the discharge electrodes 48 and the collecting electrodes 38. Since the discharge electrodes 48 have an extremely small surface area as compared to the total surface area of the collecting electrodes 38 presented thereto, the last named electrodes exert a more powerful attractive effect on the spray particles than do the electrodes 48. The tendency of the discharge electrodes 48 to collect spray particles is further diminished by the fact that they are located at the extreme edge of the normal path of the spray from the guns 44 or completely out of said path.

By means of the arrangement of the spray guns just described, the path of the spray and the path of the articles 36 is such that both small and large spray particles lose their initial velocities at points adjacent to the path of travel of the article. Thus there is always an electrically charged article reasonably close to exert an attractive effect on each slowly moving particle. The efficiency of the paint collection is, therefore, immensely increased over that of any arrangement in which the spray is directed substantially at right angles to the path of travel of the articles. The velocity of spray is normally adjusted so that none of the spray particles pass beyond the confines of the cabinet. It is immaterial in which end of the cabinet the spray guns are mounted. In fact, one may be mounted in one end and the other in the opposite end. Such an arrangement is beneficial in certain installations. Where only one side of each article is to be coated only one gun and one discharge electrode may be required. In other cases, such as for larger objects, more than one gun may be required on each side of the conveyor.

It is to be noted particularly that the articles to be coated need not be electrical conductors. When said articles are so placed as to mask the collecting electrode so that the electrostatic field must pass through the article, the efficiency of the collecting electrode is not materially impaired. Paint which is attracted by the collecting electrode is then deposited on the outer surface of the article. It is not necessary in all cases that the collecting electrodes be carried by the conveyor and act as supports for the articles. Where only one side of an article is to be coated it may be advantageous in some cases to mount a collecting electrode in a stationary position on the side of the conveyor opposite to the discharge electrode. Such an arrangement is illustrated in Fig. 7 in which an object 136 to be coated on one side only is in the form of a thin plate of non-conducting material. Said object is carried by a support 133 which may be mounted in the carrier 29 in the same manner as the rod 33 previously shown. The discharge electrode may be in the form of a metallic point 148 mounted on the end of one of the insulators 47. The collecting electrode is shown as a plate 138 carried on a similar support on the opposite side of the path of travel of the article 136. The spray gun 44 discharges the paint spray into the space between the discharge electrode and the object. In apparatus of this kind it is advantageous to move the conveyor intermittently, stopping each of the objects 136 between the electrodes for a sufficient length of time to receive a thorough coating of paint.

For objects not placed too closely together on the conveyor, the electrical attraction is sufficient to give a relatively uniform coating on all sides of the articles, even though the articles are not turned during their movement while subjected to the spray. For articles of this type and for other articles where the spray is to be applied to one side only, there is provided a construction as shown in Fig. 6 of the drawings. Each of the sprockets 31 is provided with a suitable opening in which there is inserted a pin 60, the lower end of which is received in an opening in the adjacent link of the chain 16. The pin, therefore, prevents the articles from turning during their travel through the cabinet.

When the articles on the conveyor are spaced relatively close together it is desirable that they be slowly rotated in their movement through the cabinet to insure uniform coating. For this purpose mechanism shown particularly in Figs. 3 and 4 is provided. In this construction there is provided a pair of brackets 64 secured to the plate 18, one of which brackets serves as a bearing for a vertical stub shaft 62 and the other for a similar stub shaft 63. A sprocket chain 64 is trained about a pair of sprockets 65 and 66 carried by said stub shafts. The chain 64 is of the proper pitch to mesh with the sprockets 31 carried by the carrier units 28. A plate 67 rests on brackets 68 and a bracket 69 secured to the plate 18. The edges of said plate 67 engage the inner and outer runs of the chain 64 which is preferably a roller chain adapted to run smoothly on said edges. By movement of the plate 67 toward or away from the conveyor 16 the chain 64 may be brought into and out of mesh with the sprockets 31.

The plate 67 has secured thereto a vertical pin 70 extending downwardly through a slotted opening 71 in the bracket 69 and having secured thereto a T-fitting 72. A stud 73 is threaded in the outlet of said T-fitting and is connected to a rod 74 by a pipe union 75. Said union is loosely adjusted so that the rod 74 may be rotated without rotating the stud 73 and the threaded connection 76 therein is soldered to prevent the union becoming unscrewed in its movement. The outer end of the rod 74 is guided in a bracket 77 secured to the bracket 69. A washer 78 is

carried by the rod 74 and is held in place thereon by a pin 78. A compression spring 80 is interposed between said washer and the bracket 77 and normally urges the rod 74 and associated parts to the left in Fig. 4 to keep the chain 64 in engagement with sprockets 31. The yielding pressure of the spring permits the chain to give slightly if the teeth of the sprockets do not initially engage the chain at the proper point.

The outer end of the rod 74 is provided with a T-fitting 81, in one run of which there is secured a downwardly extending handle 82 and the other of which carries a stud 83. A detent 84 is secured to a portion of the cabinet in position to engage the stud 83. A guide pin 85 secured to the bracket 69 operates in a slotted opening 86 in the plate 67 and serves to guide the movement of the same. By means of this construction, the spring 80 normally presses the plate 67 against the inner run of the chain 64 and holds said chain in engagement with the sprockets 31. By means of the handle 82 and the rod 74 may be rotated so that the stud 83 clears the detent 84, the rod may then be drawn to the right in Fig. 4 and the stud 83 returned to its vertical position outside of the detent 84. In this movement the plate 67 is moved to the right in Fig. 4 and disengages the chain 64 from the sprockets 31 and the detent 84 engages the stud 83 to retain the parts in this position.

A variable speed motor 87 is connected through a reduction gear unit 88, a pulley 89 and a belt 90 to a pulley mounted on the stub shaft 32 and thus serves to move the chain 64. When the motor 87 is run at the proper speed to operate the chain 64 at the same speed as the conveyor chain 15, no rotation of the articles on the conveyor is produced. By increasing the speed of the motor 87, rotation of the articles is effected in one direction, and by reducing the speed, the direction of rotation may be reversed. Any suitable speed of rotation of the articles may thus be produced by slight variations in the speed of motor 87. Of course when rotation of the articles is to be produced the pins 68 are withdrawn.

The foregoing specification describes the invention in one of its preferred forms. It is apparent however that variations in one or more of the elements of the invention are necessary for the coating of articles of different sizes and shapes. Articles of conducting material serve as their own collecting electrodes and do not require additional collecting electrodes of large size, such as shown herein. With the high voltages used in the method, certain articles not ordinarily classed as conductors actually possess sufficient conducting power to be efficient electrodes in themselves. For example, small panels of wood have been successfully painted without the use of additional electrodes. Some articles are of such shape that they cannot be efficiently sprayed with the spray guns located as shown herein. With such articles it may even be necessary to direct the spray at right angles to their path of travel. However, even with such an arrangement of the guns other features of the invention specified in the claims are applicable.

The invention claimed is:

1. A method of coating articles, comprising the creation of an electrostatic field of definite length and breadth, continuously passing a series of the articles to be coated in spaced relation along the longitudinal center line of said field, and projecting a spray of siccative coating material from one end and exteriorly of said field into the latter roughly parallel and at an acute angle to the said longitudinal center line and with a force insufficient to project the spray beyond the opposite end of the field.

2. A method of coating articles, comprising the creation of an electrostatic field of definite length and breadth, continuously passing a series of the articles to be coated in spaced relation along the longitudinal center line of said field, and projecting a spray of siccative coating material from one end and exteriorly of said field into the latter roughly parallel and at an acute angle to the said longitudinal center line, the length of the field being greater than the projection of the spray.

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METHOD AND APPARATUS FOR SPRAY COATING OF ARTICLES

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Fig. 2.

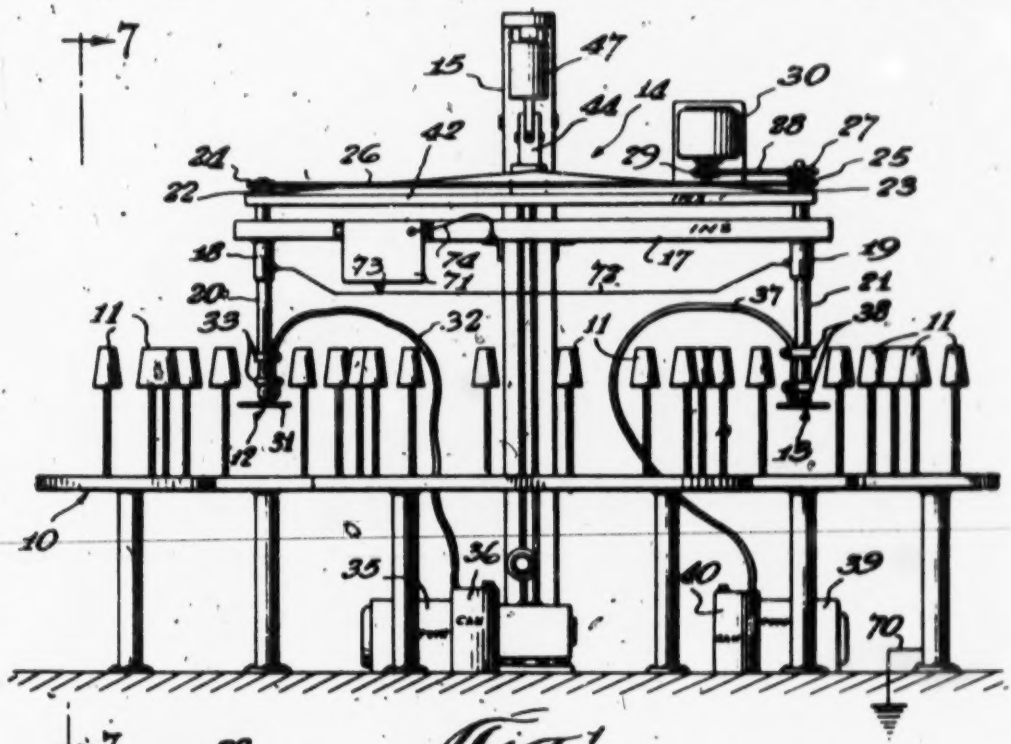

Fig. 1.

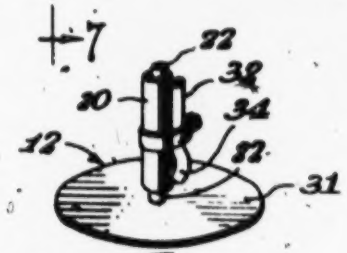

Fig. 3.

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METHOD AND APPARATUS FOR SPRAY COATING OF ARTICLES

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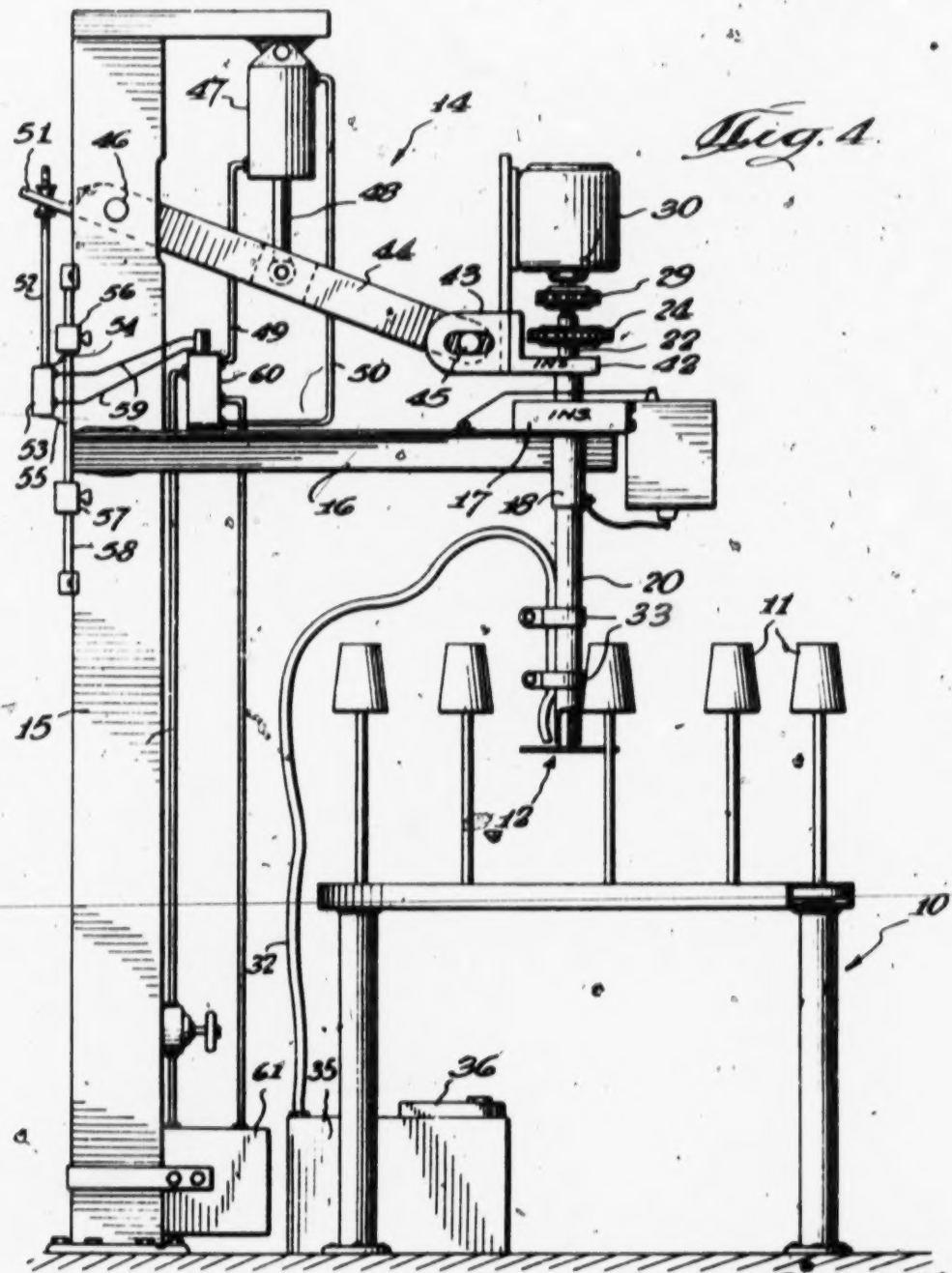
Fig. 1.



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METHOD AND APPARATUS FOR SPRAY COATING OF ARTICLES

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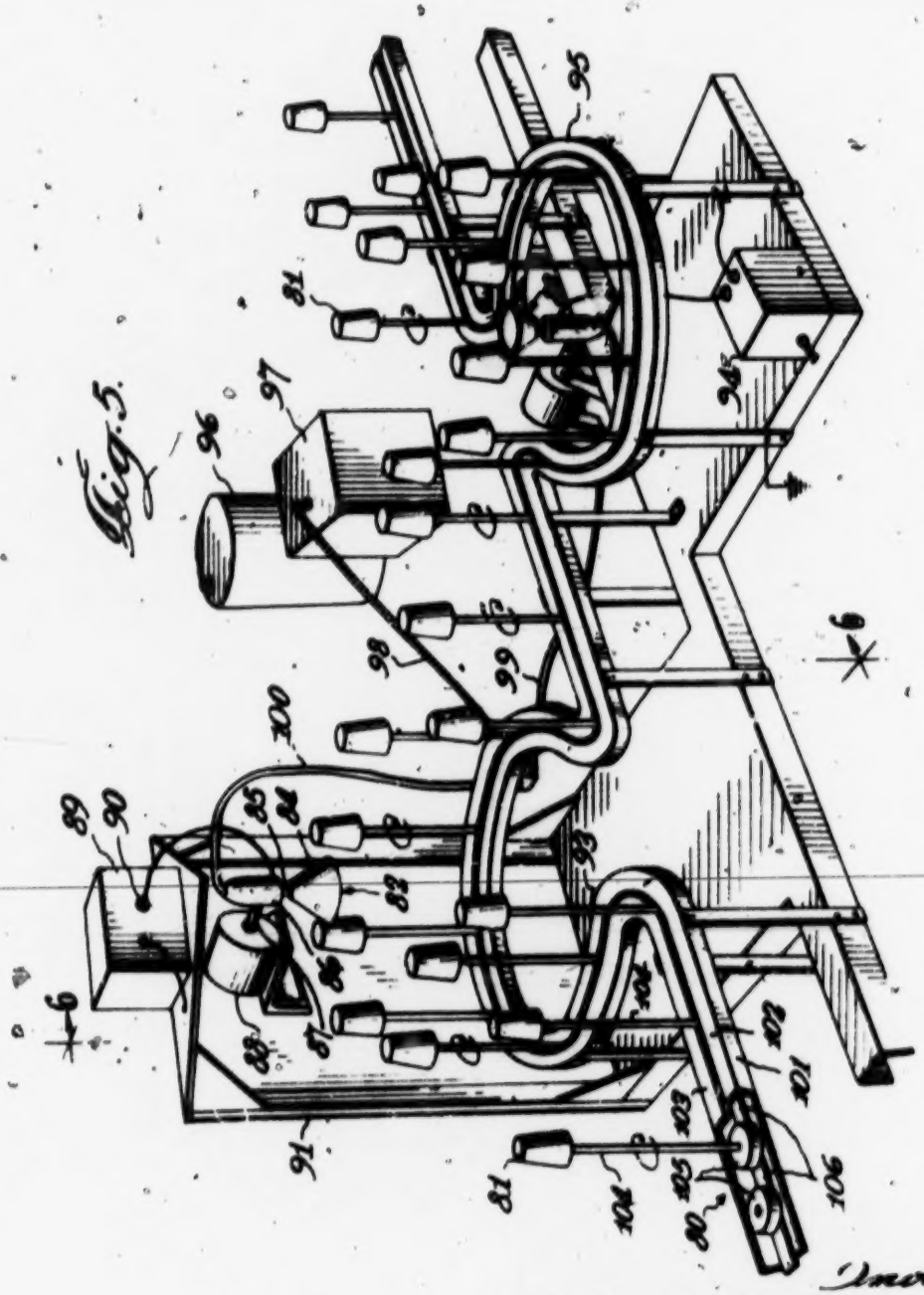
Fig. 5.



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METHOD AND APPARATUS FOR SPRAY COATING OF ARTICLES

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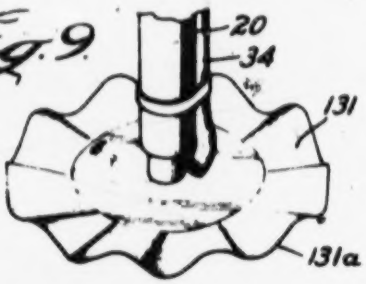
Fig. 9.



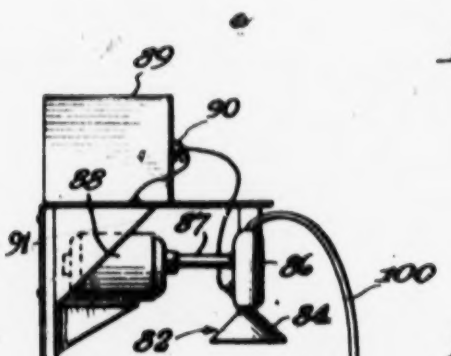
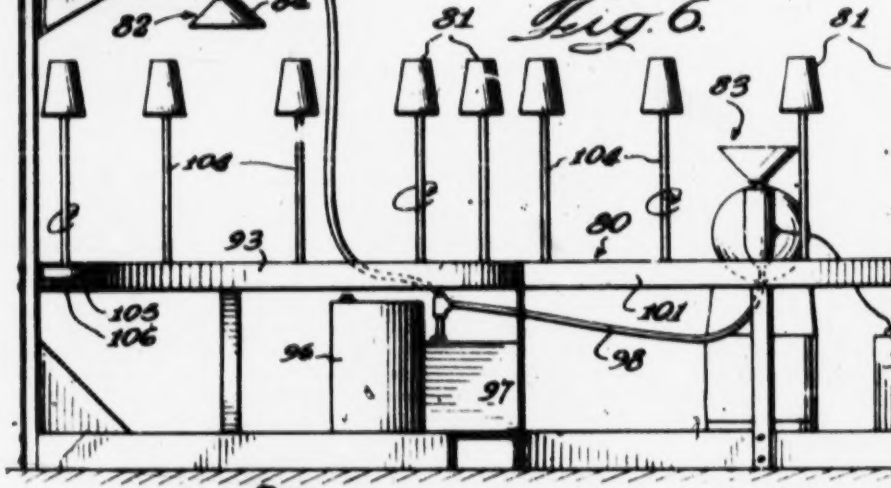
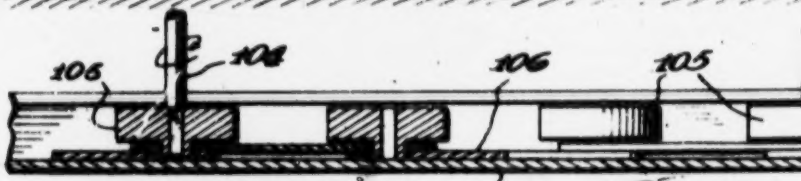


Fig. 6.





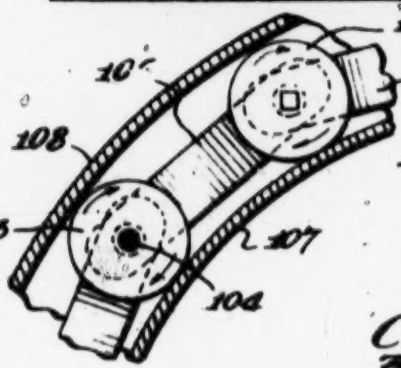


Fig. 7.

Fig. 8.

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United States Patent Office

2,808,343

Patented Oct. 1, 1957

2,808,343

METHOD AND APPARATUS FOR SPRAY COATING OF ARTICLES

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Application March 5, 1953, Serial No. 274,969

21 Claims. (Cl. 117—93)

This invention relates to the spray coating of articles and more particularly to coating apparatus and coating methods to be used in electrostatic coating systems.

In a majority of electrostatic coating systems a field of electrostatic force is set up which includes the article being coated and the atomized coating material particles in movement toward such article. Deposition of the atomized particles is primarily the result of electrostatic forces and the particles are given an electrostatic charge at the time they leave the atomizing or spraying device or shortly thereafter. Where the articles to be coated are of conducting material, it has been the natural commercial practice to mount the articles on a grounded conveyor and thus to make the articles themselves an electrode at ground potential. Another electrode at high electrical potential is provided with this electrode sometimes being the spraying device and sometimes being a separate electrode near or past which the sprayed particles pass in their movement toward the article.

Where the spraying device is one of the electrodes in an electrostatic field and where atomization of the coating material is accomplished without the aid of compressed air, it has been found that the spray of atomized coating material particles takes a rather definite pattern which depends at least partially on the shape of the atomizing means. Thus, where the highly efficient atomizing head of the type shown in the co-pending application of E. M. Ransburg, Serial No. 143,994, filed February 13, 1950, is used, the natural pattern of the spray is annular in shape, that is, if a rotating bell-type head of the type shown in said Ransburg application is positioned with its axis of rotation vertically arranged and coating material is supplied to the head for coating a flat sheet located beneath the head, the spray pattern on the sheet would be generally in the form of a circle. In the coating of such sheets, of course, relative motion is produced between the head and the sheet so as to apply a homogeneous film of coating material thereover. Where articles having a diameter less than the diameter of the spray pattern are to be coated, a more difficult problem arises. If a group of small articles is to be coated and is passed in linear array beneath a coating head of the bell-type previously mentioned, the articles would be passed through only a portion of the natural pattern of the spray, and while the electrostatic forces present would be sufficient to pull in most of the particles out of the natural pattern and onto the article, some over-spray or loss of coating material may occur.

One of the features of the present invention is the provision of an electrostatic coating system wherein the articles to be coated are carried along through the natural pattern of the atomizing means for an appreciable distance and therefore over-spray is prevented.

A further feature of the invention is the provision of an electrostatic coating system wherein an atomizing device having a natural spray pattern which is annular in shape is employed to supply the atomized coating material particles and wherein the articles to be coated are moved in a path a substantial portion of which is circular and coincides with the natural annular pattern. By so moving the articles relative to the natural pattern of the atomizing device, substantially all of the coating material atomized is deposited or precipitated on the article by the electrostatic forces employed and little material is lost through over-spray even if the articles are small.

Another feature of the present invention is the provision of a modified form of atomizing means which can be simply and inexpensively constructed and yet which is quite efficient in operation. The preferred form of such modified atomizing means is a flat, circular disk of sheet metal or the like which is rotated about its center at a speed sufficient to spread coating material delivered to the surface of the disk at or near its axis of rotation into a thin film outwardly to the edges of the disk for atomization from an atomizing zone adjacent the disk edge. If desired, the disk itself may be maintained at high electrical potential relative to the articles and thus form one of the electrodes in the electrostatic coating field. If such a disk type atomizing head is employed in a coating system wherein the articles are moved past and into field-creating relationship with the head along a path which lies in the plane of rotation of the disk, it will be realized that both of any centrifugal forces acting upon the coating material and the electrostatic forces which serve to deposit the coating material on the articles will operate in parallel, that is in substantially the same direction so that the force of one supplements or augments the force of the other.

A further feature of the invention contemplates the use of a disk-type atomizing head of the type described in the preceding paragraph in an electrostatic coating system wherein the articles to be coated are moved in a semicircular path around the head and in the plane of rotation thereof. The result of such a system is to produce a highly efficient coating apparatus which possesses the additional advantage of permitting slower feeds of coating material to the head without the necessity of the additional use of solvents to prevent hardening or stiffening of the coating material before it is deposited on the articles. This latter advantage is believed to be due to the fact that the rotation of the disk speeds the coating material rapidly to the edge thereof for atomization so that any particular portion of the film of coating material on the surface of the disk remains exposed to the air only for a relatively short period of time, and thus retains the solvents normally present therein.

As a corollary feature of the invention, there is provided a system wherein small articles which are to be coated on their sides, top and bottom are moved into field-creating relationship with two atomizing means, one positioned above the plane of movement of the articles and the other positioned below such plane. The two atomizing means employed may be vertically spaced from one another and both operated as the articles pass in a circular path through the natural pattern of each atomizing means although it is preferred to move the articles in two such semicircular paths, one through the natural pattern of an atomizing means placed above such path and the other through the pattern of a second atomizing means located below such path. By utilizing this type of apparatus and method, an adequate covering of all portions of the article by the coating material can be achieved and the coating material is not concentrated along the areas of the article nearest the atomizing means while producing an insufficient coating on other areas of the article as might otherwise occur if only one atomizing means were employed.

While as previously discussed above, an adequate coating of material can be applied to the top, bottom and sides of small articles by the use of two atomizing

means, it has also been discovered that a single atomizing means can be employed to achieve a similar result if the atomizing means is moved or reciprocated relative to the articles during their passage through the coating zone. Thus, the atomizing means may be reciprocated in a direction axial of the annular spray pattern so that deposition is effected over the entire article surface in desired manner even though the extent of the article is such as to exceed the spray pattern width at the coating zone. Therefore, another feature of the invention is the provision of means for reciprocating the atomizing means during the passage of an article through the coating zone so as to apply a uniform coating of the material on all portions of the article.

Another feature of the invention is the provision of control means for a reciprocating type of atomizing means as described in the previous paragraph which serves to control the length of the reciprocating stroke of the atomizing means together with readily adjustable means for varying the length of this stroke and for variably determining the top and bottom limits of the stroke.

Other and further features of the invention will be readily apparent from the following description and drawings, in which:

Fig. 1 is a front elevational view of an apparatus embodying the invention;

Fig. 2 is a top plan view somewhat schematic in character showing the path of movement of the articles in the apparatus illustrated in Fig. 1;

Fig. 3 is an enlarged, detailed view of a disk-like atomizing means forming a part of the invention;

Fig. 4 is a side elevational view of the apparatus shown in Fig. 1;

Fig. 5 is a perspective view of a modified form of apparatus;

Fig. 6 is a vertical sectional view along line 6—6 of Fig. 5;

Fig. 7 is a vertical, sectional, detailed view of the conveyor mechanism;

Fig. 8 is a horizontal, sectional view of the apparatus shown in Fig. 7; and

Fig. 9 is an enlarged detailed view of an alternative form or disk-like atomizing means forming a part of the invention.

While several forms of apparatus are illustrated in the accompanying drawings and will be described hereafter as providing means for practicing the present invention, it will be understood that these are representative embodiments only. It will also be understood that forms of spraying devices other than the particular atomizing devices shown may be utilized and that other apparatus may be employed for accomplishing the purposes and for practicing the methods of the invention, and it is to be understood that other embodiments may be utilized without departing from the contemplated scope of the present invention, and that no limitations are to be implied from the specific description now provided.

Referring now to Fig. 1, there is shown a conveyor 10 provided with means for carrying a plurality of articles 11 in a semicircular path around a first atomizing means 12 and thence around a second atomizing means 13. The atomizing means are mounted for vertical reciprocation on a support generally designated 14.

The support 14 includes an upstanding, fixed column 15, preferably of channel iron construction, to which is secured a horizontally extending angle arm 16 to the outer end of which is fixed a horizontally extending bracket 17 made of Bakelite or other insulating material. The bracket 17 is provided adjacent its outer ends with a pair of metallic sleeves 18 and 19, each of which slidably carries a hollow metal support rod 20 and 21. Rotatably mounted within the support rods are a pair of metal drive shafts 22 and 23. Pulleys 24 and 25 are fixed to the upper ends of the drive shafts 22 and 23, respectively, and a V-belt 26 passes around each of the pulleys to connect the shafts 22 and 23 for rotation together. A second pulley 27 is secured to the shaft 23 and carries a V-belt 28 which passes around a pulley 29 fixed to the drive shaft of a driving electric motor 30. From the foregoing description it will be clear that energization of the motor 30 serves through the drive belts and pulleys just described to rotate each of the shafts 22 and 23.

The lower end of each of the shafts carries the atomizing means which, in the embodiment illustrated in Figs. 1 and 3, takes the form of a thin, flat, circular disk 31 of sheet metal. A flexible tubing 32 of plastic, rubber or other insulating material is secured by means of a pair of brackets 33 to the support rod 20 with the end 34 of the tubing opening to the upper surface of the disk 31 adjacent its center and with the other end being connected to a pump 35 which draws coating material from a container 36 and delivers it to the upper surface of the disk. A similar tubing 37 is attached by brackets 38 to the support column 21 and to a second pump 39 in turn connected to a second source of coating material 40 for delivering coating material to the upper surface of the disk comprising the atomizing means 13. Both of the tubings 32 and 37 may be connected to a single pump if both atomizing means are to coat the articles with the same material; however, as it is possible to achieve some drying between the time the articles are coated as they pass adjacent the atomizing means 12 and until they are moved into depositing relationship with the atomizing means 13, it becomes possible to apply a prime coat with the first atomizing means and a finish coat with the second atomizing means, and obviously if such an operation is contemplated, separate pumps and supplies of coating material will be required for each atomizing means.

The degree of fineness of the particles of coating material atomized may be varied by changing the speed of rotation of the disc. Thus as the speed of rotation is increased, the particle size decreases. Preferably with a disc of from four to eight inches in diameter the speed of rotation thereof is from 1500 to 2000 R. P. M. With finer particle size, each particle has less inertia and thus more loses the force of centrifuge. Because of this, less voltage is required to effect deposition. In a system with an eight inch disc rotating at 1500 to 2000 R. P. M. at about nineteen inches from the articles, voltages of from 25,000 to 90,000 volts may be used without decreasing the efficiency of deposition and, of course, with increased safety to personnel.

As previously mentioned, means are provided for reciprocating the atomizing means vertically as the articles 11 are moved along the conveyor. For this purpose the upper ends of the hollow support columns 20 and 21 are carried in a cross bar 42 made of insulating material in turn supported by means of a slotted bracket 43 on the outer end of an arm 44. The arm carries at one end a pin 45 slidable in the slot in the bracket with the other end of the arm being pivotally mounted at 46 on the support 15. A pneumatic piston and cylinder device 47 is provided with a piston rod 48 connected at one end to the piston and at the other end to the arm 44. Means in the form of conduits 49 and 50 are provided for supplying air under pressure alternately to opposite ends of the piston and cylinder device to reciprocate the piston therein, and thus to swing the arm 44 about its pivot 46. Such swinging movement of the arm is of course accompanied by vertical movement of the support bar 42 to which the arm is connected and thus reciprocates the atomizing means 12 and 13 vertically during the coating operation.

Inasmuch as the articles 11 may vary from job to job in over-all size and shape, means are provided for regulating both the length of the stroke of the reciprocating means and the points to which the reciprocal motion of the atomizing means are reversed. To this end the arm

44 is extended so as to have an integral portion 51 extending beyond the pivot point 46, which portion carries a rod 52 which in turn carries a microswitch 53 provided with the upper and lower contacts 54 and 55 adapted to contact dogs 56 and 57 adjustably positioned on a rod 58 attached to the support 18. The microswitch is provided with suitable connections 59 to an electrically operated valve 60 which controls the introduction of compressed air into the conduits 49 and 50 from the air pump 61. As the arm 54 is pivoted downwardly the microswitch 53 is moved upwardly until its upper contact 54 makes contact with the dog 56. Such contact serves to reverse the valve 60 so as to pivot the arm in the reverse direction until the microswitch contacts the lower dog 57. By shifting the dogs both the length of the stroke of the atomizing means and the point of reciprocation may readily be adjusted even during the coating operation.

The width of the spray pattern may be increased even without reciprocating the discs by providing the discs with a corrugated or "pie crust" edge. A disk 131 with one form of a corrugated or "pie crust" edge 131*a* is shown in Fig. 9. Thus an eight inch disc may be provided with three quarter inch hammered corrugations along its edge and such corrugations will widen the pattern band to about ten inches at approximately nineteen inches from the axis of rotation of the disc. Similarly, the disc may be mounted on the shaft at an angle of other than 90 degrees relative thereto so as to produce a wobble plate or the axis of the shaft itself may be tilted with respect to the plane of the path of movement of the articles (or the path may be tilted with respect to the axis of the shaft), in either case to widen the effective coverage of the spray pattern.

The conveyor is grounded as indicated at 70 and each of the atomizing means is maintained at a high electrical potential relative to ground by means of a power pack 71 fixed to the bracket 17. Each of the sleeves 18 and 19 is connected to an electrical wire 72 in turn connected to the hot terminal 73 of the power pack, the other terminal of which is grounded on the support 15 as indicated at 74.

By referring to Fig. 2, it will be noted that the articles 11 are carried by the conveyor in an arcuate path (exceeding a semicircle) around each of the atomizing means. The path is in the annular patterns of each of the atomizing devices and inasmuch as the articles are spaced radially outwardly from the discs in their plane of rotation, both the electrostatic forces existing between the discs and the grounded articles and any centrifugal force exerted on the coating material as it issues out on the upper surface of the disc and atomizes from the edge thereof operate in parallel to direct the material outwardly toward the articles. During their travel around the atomizing means the articles themselves are rotated so that all sides thereof are presented a number of times toward the atomizing means. Many forms of conveying devices, such as the one hereinafter to be described, may be utilized for producing such movement of the articles.

A somewhat modified form of apparatus is shown in Fig. 5 which includes a conveyor 80 for conveying a plurality of articles 81 around a first atomizing means 82 and thence around a second atomizing means 83. The atomizing means are of the type shown and described in the said application of E. M. Ransburg, and include a bell-type head 84 fixed to a hollow shaft 85 rotatably supported in a housing 86. Beveled gears within the housing are rotated by means of a drive shaft 87 made of insulating material and connected to a driving motor 88. A power pack 89 has its hot terminal 90 connected to the housing with the opposite terminal being grounded to a metallic support 91 which supports both the motor and the power pack.

It will be noted that the atomizing means 82 is fixed relative to the path of movement of the articles, that is, does not reciprocate as did the atomizing means in the previous embodiment, but is positioned above the articles and the path of movement in the arcuate portion 93 of the conveyor is such as to carry the articles 81 in a path which is a portion of a circle lying within the natural annular pattern of the atomizing means. Thus, the articles are carried in a path which is parallel to the center line of the pattern, which in this case is again annular, and the atomizing means is so positioned that the width of the pattern does not exceed a few times the maximum dimension of the article surface transverse to its direction of movement. Thus, in the specific embodiment illustrated, the atomizing means 82 is so positioned that the width of its natural pattern approximates, but in any event is not many times greater than, the vertical length of the articles 81.

The second atomizing means 83 is constructed similarly to the means 82 but is positioned below the articles and connected to a power pack 94 to maintain the atomizing means at a high electrical potential relative to the grounded articles. That portion of the conveyor 95 adjacent the second atomizing means is again arcuate so that the articles 81 in traveling around the second atomizing means again are moved in a portion of a circular path conforming or coinciding with the natural pattern of the second atomizing means. By so positioning the atomizng means and so carrying the articles therearound, both the top, bottom and sides of the article are provided with an adequate covering of the coating material. Thus, the atomizing means 82 serves to deposit coating material on the top and sides of the article while the second atomizing means 83 coats the bottom and sides of the article. As both atomizing means are employed to apply a single coating to the articles, a common source of coating material supply 96 may be used together with a pump 97 for supplying coating material to a feed pipe 98 in turn connected to insulated tubing 99 and 100 connected to the interior of the hollow shafts 85 of the atomizing devices.

While as previously noted, many forms of conveyor devices may be used, the particular one illustrated comprises a channel member 101 formed with spaced integral flanges 102 and 103 along its upper side. Metallic rods 104 carry the articles 81 at their upper end and extend downwardly through the space between the flanges and are secured in rollers 105. The rollers are rotatably mounted upon links 106 which are pivotally connected together at the location of the rollers as shown in Fig. 8. At the curved portion of the conveyor track around each of the atomizing means the rollers 105 contact the sides 107 or 108 of the track to rotate the rollers and hence the support rods and articles during the time the actual coating deposition is taking place. As no coating occurs during the time that the articles are traveling along the straight portion of the conveyor track it is immaterial whether or not the rollers are brought into contact with the sides of the channel to rotate the articles.

While I have shown and described certain embodiments of my invention, it is to be understood that it is capable of many modifications. Changes, therefore, in the construction and arrangement may be made without departing from the spirit and scope of the invention as disclosed in the appended claims:

I claim:

1. Apparatus for coating a plurality of articles from exteriorly thereof, comprising: a spraying device for providing an expanding spray of coating material radiating from said device as a center conveyor means including a plurality of spaced article-supports for bodily transporting said articles and positioning them in spaced relation within at least a portion of the spray pattern and along a predetermined arcuate path concave toward the axis of said spraying device, said conveyor means being so constructed and arranged that a plurality of article-supports simultaneously lie within said arcuate path and in said spray pattern; and means for creating an electrostatic charge differential between the spray pat- tes

and the articles electrostatically to deposit the particles on the articles.

2. Apparatus of the character described in claim 1, in which said spraying device comprises a rotatably mounted disc provided with an edge having portions in different axial spaced planes whereby rotation of the disc provides a relatively wide spray pattern.

3. Apparatus for coating a plurality of articles from exteriorly thereof, comprising: a spraying device for providing a spray of coating material expanding radially from a source; a conveyor for bodily transporting said articles successively within the spray along a curved path concave toward said spraying device and through a substantial portion of the spray and for individually rotating them during such movement; means for creating an electrostatic charge differential between the spray particles and the articles electrostatically to deposit the particles on the articles; and motor means for automatically reciprocating the spraying device normal to the general direction of spray movement during the coating, said movement having an extent sufficient to coat all portions of articles having a maximum dimension greater than the width of said spray pattern.

4. Apparatus of the character claimed in claim 3, wherein the spraying means moves the full extent of its travel during movement of a given article within the spray, and wherein the article is rotated more than once during such movement.

5. A method for providing a relatively wide coverage of a spray pattern in an electrostatic coating system, comprising: projecting spray particles radially from a source in a pattern expanding generally in a single plane; carrying articles to be coated in a curved path at least partially around the source and through said spray pattern; creating an electrostatic charge differential between the spray particles and the articles in said path electrostatically to deposit the particles on the articles; and maintaining said path as it passes through said spray pattern at an acute angle to the plane of an radially expanding pattern.

6. A method for electrostatically coating a plurality of articles, comprising: providing from a source exterior of the article a spray of coating material in a pattern extending radially from said source; bodily transporting said articles successively through said spray pattern in an arcuate path generally concentric with said source and through at least a substantial portion of the spray pattern; and creating an electrostatic charge differential between the spray particles and the articles electrostatically to deposit the particles on the articles while still in liquid state.

7. A method for coating a plurality of articles, comprising: providing from a source exterior of the article a spray of coating material in a pattern entirely around said source; bodily transporting said articles successively through said spray pattern in an arcuate path generally concentric with the source and through at least a substantial portion of the spray pattern while moving said spray pattern axially; and creating an electrostatic charge differential between the spray particles and the articles electrostatically to deposit the particles on the articles while still in liquid state.

8. Apparatus for electrostatically coating a plurality of articles comprising a rotatably mounted disk, means for supplying liquid coating material to the disk inwardly of the edge thereof, means for rotating the disk to move the material radially to an atomizing zone adjacent the edge of the disk for atomization and centrifugal projection from said atomizing zone in the form of finely divided particles, means for bodily transporting articles in path portions on opposite sides of the disk and in the plane thereof, and means for creating an electrostatic charge differential between the atomized particles and the article.

9. Apparatus for electrostatically coating a plurality of articles comprising a rotatably mounted atomizing member, means for supplying coating material to a surface of said member, means for rotating the member to move the coating material radially over said surface to an atomizing zone adjacent the edge of the surface for atomization and centrifugal projection from said atomizing zone in the form of finely divided particles, conveyor means for bodily transporting said articles and arranged to position articles substantially entirely around said atomizing member with at least some of said articles being in the plane of the edge, and means for creating an electrostatic charge differential between the atomized particles and the articles.

10. Apparatus for coating a plurality of articles from exteriorly thereof, comprising: a rotatable spraying device for providing a spray of coating material moving outwardly in an expanding pattern; conveyor means including a plurality of spaced article-supports for bodily transporting said articles successively in spaced relation within at least a portion of the spray pattern and along a predetermined arcuate path concave toward the axis of said spraying device, said conveyor means being so constructed and arranged that a plurality of article-supports simultaneously lie within said arcuate path and in said spray pattern; and means for creating an electrostatic charge differential between the spray particles and the articles electrostatically to deposit the particles on the articles.

11. Apparatus for coating a plurality of articles from exteriorly thereof, comprising: a rotatable atomizing device for providing a spray of coating material radiating therefrom in an expanding pattern; a conveyor for bodily transporting said articles successively within the spray along a path having portions on opposite sides of and substantially equidistantly spaced from and in the plane of rotation of the atomizing portion of said device, and through at least a substantial portion of said spray and for individually rotating them during such movement; and means for creating an electrostatic charge differential between the spray particles and the articles electrostatically to deposit the particles on the articles.

12. Apparatus for coating a plurality of articles from exteriorly thereof, comprising: a spraying device for providing a radially expanding spray of coating material; a conveyor for bodily transporting said articles successively within the spray along a curved path concave toward said spraying device and through a substantial portion of said spray; means for creating an electrostatic charge differential between the spray particles and the articles electrostatically to deposit the particles on the articles; and means for moving the spraying device normal to the general radial direction of spray movement during the coating.

13. Apparatus for coating a plurality of articles from exteriorly thereof, comprising: a rotatably mounted atomizing device having a circular edge; means for supplying liquid coating material to a surface of the device; means for rotating the device to move the coating material fed thereto to the edge for atomization therefrom as a spray expanding radially from the axis of rotation of the device; a conveyor for bodily transporting said articles successively within the spray along a curved path concave toward said atomizing device and through at least a substantial portion of the spray; means for creating an electrostatic charge differential between the spray particles and the articles electrostatically to deposit the particles on the articles; and means for reciprocating the atomizing device parallel to its axis of rotation during the coating.

14. Apparatus of the character described in claim 13, including a motor for continuously reciprocating said device during the coating and a control for said motor including a pair of electrical switch means; switch operating means, one of said means being movable in accordance with axial movement of the device; and means for readily adjusting the relative positions of said switch means and switch operating means to adjust the extent of reciprocation of said device.

15. A method for providing a relatively wide coverage of an annular spray pattern in an electrostatic coating sys-

tem, comprising: projecting spray particles radially in an expanding disc-like pattern; carrying articles to be coated in a path having portions on generally opposite sides of the axis of the pattern and in the plane of the spray particle projection; said path portions being of greater length than the transverse extent of the spray pattern; and creating an electrostatic charge differential between the spray particles and the articles electrostatically to deposit the particles on the articles.

16. A method for electrostatically coating a plurality of articles from exteriorly thereof comprising carrying the articles to be coated in a curved path, projecting an expanding spray of liquid coating material particles from a source located substantially at the center of curvature of said path, said projection being generally toward the articles on said curved path, and creating an electrostatic charge differential between the spray particles at said source and the articles electrostatically to deposit particles thereon.

17. A method for electrostatically coating articles from exteriorly thereof comprising moving a plurality of articles to be coated to positions in a curved path, providing a source of liquid spray particles adjacent the center of curvature of the path, moving said source about said center, while issuing spray particles therefrom to create an expanding spray of coating material particles projected generally toward the articles in said curved path, and creating an electrostatic charge differential between said source and the articles electrostatically to deposit particles thereon.

18. A method for electrostatically spray coating articles from exteriorly thereof comprising projecting an expanding spray of liquid coating material particles from a source, bodily, and sequentially transporting the articles in a looped path to simultaneously position a plurality of such articles around and substantially equidistant from said source, said spray projection being generally toward the articles, and creating an electrostatic charge differential between the spray particles and the articles electrostatically to deposit particles thereon while still in liquid state.

19. In a method of electrostatically spray-coating articles from exteriorly thereof with an expanding annular spray of electrically charged particles moving outwardly away from a central axis through the region therearound, the steps of maintaining the articles at a particle-attracting potential and moving them sequentially through the spray over a path spaced outwardly from said central axis and extending circumferentially relative to said axis, said path having within the spray a total linear extent greater than the diameter of the spray at the location of said path.

20. A method for electrostatically spray coating a plurality of articles from exteriorly thereof comprising, providing an electrode, bodily and sequentially transporting articles in a looped path to simultaneously position a plurality of such articles around and substantially equidistant from said electrode, creating an electrostatic field extending between said electrode and said articles, and introducing atomized liquid coating material particles into said field for movement from adjacent said electrode to the articles to be electrostatically deposited thereon while maintaining the articles around said electrode, simultaneously to apply coating material to said articles.

21. Apparatus for coating a plurality of articles from exteriorly thereof, comprising a spraying device for providing an expanding spray of coating material radiating from said device as a center; conveyor means including a plurality of spaced article-supports for bodily transporting said articles and positioning them in spaced relation within at least a portion of the spray pattern and along a predetermined arcuate path concave toward the axis of said spraying device, said conveyor means being so constructed and arranged that a plurality of article-supports simultaneously lie within said arcuate path and in said spray pattern; and means for maintaining a substantial difference of electrical potential between the articles on said conveyor and said spraying device to cause electrical charging of the spray particles and deposition of the charged particles on the articles.

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